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A Cognitive Approach to Facilitating Psychological Adjustment to Hysterectomy

by

Michael David Handman

A THESIS

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External Examiner

Date April 19, 1983

To Nili and my parents

Abstract

A Cognitive Approach To Facilitating Psychological Adjustment to Hysterectomy

The main purpose of this study was to compare Stress Inoculation, Preparatory Information, and a Control treatment in facilitating positive post-hysterectomy adjustment. Patients for the study were 72 women between the ages of 30-50 in need of a full or partial hysterectomy for benign reasons who were referred to the study by gynecologists in a general teaching hospital. Patients were randomly assigned to either the Stress Inoculation group, the Information group, or the Control group. Each group consisted of 24 participants. The Stress Inoculation treatment was found to be more effective in facilitating a positive post-hysterectomy adjustment as compared to an Information or Control group as measured on a post-hysterectomy adjustment scale administered 90 days after surgery. It was found that perceived feelings of self control were significantly increased in the Stress Inoculation group as compared to the Control group as measured by the Rosenbaum Scale (1980). It was found that husband's/partner's involvement was significantly greater in those patients who participated in both treatment groups as measured by a Husband's/Partner's Questionnaire. Significant differences were found between the groups on seventeen of the twenty-eight individual variables on the Adjustment Questionnaire. The results of the study clearly demonstrated that the Stress-Inoculation treatment is an effective program in facilitating a

post-hysterectomy adjustment. This study gives support to the notion that it is more effective to teach cognitive coping skills to patients rather than just providing them with information pertinent to the hysterectomy. Suggestions for further research and possible applications to other medical and surgical interventions are presented.

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CHAPTER I

INTRODUCTION

Of all the medical disciplines gynecology seems to have been the first to deal with psychosomatic medicine. Hippocrates and Galean recognized the connection between diseases of the womb and emotional disturbances of women. Indeed, the term hysteria deriving from the Greek hysteros (meaning womb) is often unjustly used in labelling women psychiatrically. As late as the end of the 19th century, pathology of the womb or the ovaries was still considered as the main cause of mental or emotional disorders in women (Polivy, 1974).

Gynecological illness, diseases of one's organs of feminine function is often perceived by women as some impairment or "badness" of the feminine part of themselves (Raphael, 1976). The patient may see the illness as a "visitation" over which she has no control and to which she must passively submit, or as a punishment for past misdeeds or taboo sexual behavior. Even with the woman who is psychologically well adjusted, perceptions such as these may consciously or unconsciously influence the way in which she views her illness and the removal of her diseased organ (Raphael, 1976).

Mathis (1967) suggested that sex, reproduction, and the reproductive system are almost synonymous with emotional reactions in the North American culture. The emotional charge invested in the genitalia makes that region of the body peculiarly vulnerable to symptoms arising from any conflictual aspect of living.

Hysterectomy has been a much discussed gynecological procedure for women. The experience is psychologically significant for many reasons. The uterus is a symbol of femininity and intactness. Although a

hysterectomy can leave minor scars or no scars, the sense of mutilation and damage can be profound (Bieber, 1958). Myths about the effect of the surgery on sexual responses may also affect the women's adjustment (Polivy, 1974). According to Steiner and Aleksandrowicz (1970) there is a psychiatric morbidity of 48.8% after a hysterectomy. These findings were confirmed by Brennan, Spano, and Jackson (1979) in their study in which they found psychological complications in 48% of women undergoing a hysterectomy. Steiner and Aleksandrowicz (1970) stated that there is not a surgeon in practice who would tolerate a similar incidence of post-operative wound infection even though this latter condition is usually less disabling and more responsive to therapy. Post-operative psychological difficulties may not be life threatening and more often than not they disappear in time, however, these psychological symptoms may be protracted and long lasting causing considerable misery and disability.

Post-hysterectomy depression is a generally recognized entity. In a number of studies (Barber, 1968; Richards, 1973; Polivy, 1974) a higher incidence of depression following this procedure as compared with other surgical procedures was reported. They reported that women with previous emotional disturbances seemed more likely to become depressed. The loss of an organ (uterus) with such important unconscious symbolic significance with poor preparation results at times in poor psychological and physiological adjustment post-operatively.

In spite of the number of women undergoing a hysterectomy the systematic provision of education and information appears to be both uncommon and sporadic (Walters, 1979). According to Neefus and Taylor (1982) few reports of patient-education programs specific to

hysterectomy appear in the literature. Most educational programs deal with such topics as pregnancy, parent education, diabetes, heart disease, or consist of general pre-operative classes. Neefus and Taylor concluded that presently there is a beginning of some structured systematic hysterectomy patient-education that is being planned, carried out, and evaluated.

Impending surgery is a situation which engenders anxiety in most individuals confronted by it. Though some patients rather than exhibiting expected levels of fear prior to surgery, actually actively and compulsively seek out the experience most individuals perceive it as a stressor involving pain, discomfort, loss of immediate control and potential, and the loss of the ability to resume normal activities (Janis, 1958).

According to Reading (1979) research studies published in recent years suggest that surgery is a crisis situation which lends itself quite readily to the administration and evaluation of intervention techniques designed to mitigate its stressfulness. Surgery, along with other invasive medical procedures is unique in that the stressor is focalized and predictable allowing for relatively stable periods both prior to and subsequent to the stressor during which one may introduce programmed intervention procedures.

Dumas (1963) wrote that skilled and conscientious physical and psychological preparation is of crucial importance if post-operative complications are to be minimized. The pre-operative period is a time of trepidation for the patient. Ideally preparation should begin from the moment of the decision to operate until the time of incision. In reality however, this preparation if there is any besides physical

preparation rarely begins prior to hospitalization, consequently, the term pre-operative usually refers to that period of time which elapses between hospital admission and the onset of the surgical procedure. Dumas (1963) concluded that when an individual enters the hospital for surgery it is only natural that the individual regards the situation as one of the most important events in his or her life. The degree to which the experience will provoke anxiety will vary from patient to patient and from procedure to procedure.

The bulk of experimental studies dealing with the preparation of patients for surgery and the psychological effects of surgical procedures in general have been published since 1970. According to Auerbach (1973) the first major empirical study of the effects of surgically induced stress on the emotional reactions and subsequent adjustment was Janis's (1958) study. Janis's findings highlighted the notion that although most people experience some fear when facing surgery a range of fear levels are elicited, there are individual differences in the overall perception and interpretation of the various stimuli associated with surgery.

Wolfer (1973) stated that when examining preparation of patients for surgery one must be able to draw a distinction between a patient's recovery and welfare. Wolfer stated that often these terms are used interchangeably although there is a tendency to use "recovery" in connection with the physical aspects of the patients' condition while "welfare" is employed with the psychosocial aspects. Recovery can be viewed as the process of restoration and/or attainment of normal physiological and anatomical functioning. Patient welfare can be conceived as a complex multidimensional and changing affective and

cognitive state of an individual as he undergoes hospitalization and surgery. A holistic view of man and a psychosomatic approach to illness holds that the process of physical recovery is influenced by the patient's psychosocial status. The physical and psychological aspects are interdependent if not inseparable.

Rachman and Philips (1975) suggested that patients will benefit considerably from determined and systematic attempts to provide psychological preparation for their admission to hospital. This should include at least full factual information, emotional reassurance, and some inoculation. Rachman and Philips (1975) concluded that they look forward to the day when greater medical and nursing attention is given to the patient's need for emotional comfort and reassurance and less attention to the vagaries of his or her bowel movements.

According to Bergin and Garfield (1978) the most recent and perhaps surprising developments in the field of psychology have been the growth of fundamentally cognitive therapies within the domain of behavior therapy. Meichenbaum (1974) wrote that cognitive therapy refers to a variety of therapeutic approaches whose strategies and techniques are based on modifying the faulty assumptions, patterns, and attitudes underlying an individual's cognitions.

Meichenbaum (1974; 1977) developed a cognitive approach known as cognitive behavior modification. This model focuses on the modification of an individual's internal dialogue which refers to what the individual is saying to him or herself. CBM is made up of many diverse strategies and procedures. A sample of these approaches are Self Instructional Training, Cognitive Restructuring Techniques, and Stress Inoculation Training (SI), a multifaceted strategy which was developed to provide

clients with a prospective defense or set of skills to deal with future stressful situations. As in medical inoculations an individual's resistance is enhanced by exposure to a stimulus strong enough to arouse defenses without being so powerful that it will overcome the individual (Davidson, 1974).

A common theme underlying all the self statements in Stress Inoculation is the notion that it is not events per se that provoke anger, engender anxiety, and increase pain but rather it is the individual's constructions and beliefs about these events. An important implication of all the statements is the fact that people need not be victims of their thoughts and beliefs but can actively control and change them, thus manifesting self control (Davidson, 1974).

The Stress Inoculation package is composed of three phases: (a) Education; (b) Rehearsal or Skills Training; and (c) Application. Further discussion, details, and analysis of all three phases will be presented in Chapter II. A number of investigators have commented on the clinical potential of a preventive approach for handling psychological and physical stressors (Janis, 1958; Seligman, 1973). The Stress Inoculation procedure is designed to engender in clients a sense of "learned resourcefulness" to replace their sense of "learned helplessness" as defined by Seligman (1973).

Nature of the Problem

Research has indicated that a hysterectomy is the most commonly performed major surgery with ten percent of North American women undergoing this surgical procedure (Roeske, 1979). While acknowledging that there are post-operative psychological symptoms, research has focused on a remedial rather than a preventive approach. In general the

stress associated with this form of surgery seems most likely to precipitate adverse psychological reactions in patients who are less well prepared to deal with stress. The woman undergoing a hysterectomy for benign or malignant indications is likely to experience some psychosocial stress. How the patient resolves this stress will affect her psychological and physical adjustment. Stress Inoculation is a general treatment program that can be adapted to many stress situations. It was devised primarily to deal with stress and pain related disorders making it a logical approach in attempting to immunize the hysterectomy patient against psychological problems related to this surgical procedure. Janis's (1965) study can be seen as a driving force toward applying this approach. It was suggested by this study that a multifaceted training procedure in teaching coping skills should be employed to increase tolerance for an impending stressful situation such as surgery.

Purpose of the Study

The purpose of this study was the comparison of Stress Inoculation and Preparatory Information to one another and to a Control group with respect to their effectiveness as a pre-operative preparatory program in facilitating a positive post-hysterectomy adjustment.

Overview of the Study

The description of the study just outlined progresses as follows. Chapter II contains a review of the literature related to the Psychological Aspects of Hysterectomy, Cognitive Behavior Therapy, Self Instructional Therapy, and the Psychological Preparation of Patients for Surgery. This is followed in Chapter III by a description of the methodology of the study. The thesis concludes with Chapters IV and V where the results of the study as well as a discussion on the implications and possible suggestions for further research are presented.

CHAPTER II

REVIEW OF RELATED LITERATURE

Psychological Aspects of Hysterectomy

Psyche and soma are inter-related. Physical illness may cause psychiatric symptoms and emotional conflicts can precipitate somatic disturbances. It has been suggested that women are a high risk group for psychosomatic illness which in many instances ante-dates the gynecological operation (Rogers, 1950).

Surgical removal of the uterus has a long history, however, it was not until the end of the 19th Century that the mortality rate dropped to a low enough level for the procedure to be considered generally practicable and today 10% of North American women undergo a hysterectomy.

Drellich, Bieber, and Sutherland (1956) wrote that every individual evolves patterns of adaptation that are defined as the characteristic and habitual patterns of behavior that are designed to satisfy personal needs, maintain feelings of safety and security and reconcile these needs with the demands of the environment. Such patterns may ultimately be intertwined with specific organs of the body. When it becomes a medical necessity to remove such an organ these patterns of adaptation are threatened or disrupted. A hysterectomy is a matter of great consequence in the life of a woman since it appears that the uniquely female organs are greatly valued and are seen as essential in maintaining the total adaptation of the woman (Drellich et al., 1956). The woman's uterus is viewed by many women as necessary for the fulfillment of roles ordinarily seen as feminine in the individual's personal life and as a member of society.

Polivy (1974) suggested that due to our culture a woman's breasts, genitals, and reproductive organs are essential to her adaptation and self evaluation as a woman. As a result of the significance of these organs a threat to them constitutes a threat to a woman's whole self concept. Some women see their uterus as their source of strength, health, and general effectiveness (Youngs & Wise, 1976).

Kolb (1977) described child bearing and uterine function as the most highly prized biological possession and the loss of procreative ability as more than the loss of one of the most fundamental of functions. It is a symbol that both the sources and ends of energy have failed. For Kolb the loss of the uterus is a profound event, leading to feelings of guilt, worthlessness, shame, and depression resulting in the patient experiencing a narrowing of interests and a withdrawal from social contacts.

The first study in this area was carried out by Lindemann (1941) who noticed a significantly different emotional response by women to this gynecological procedure as compared to surgery on the upper abdomen.

Polivy (1974) delineated the most common psychological reactions to a hysterectomy as outlined in the psychological literature: (a) loss of sexual desire which is not organic in nature; (b) concerns about the loss of strength and femininity; (c) anxiety surrounding the loss of her child bearing ability and menstruation; (d) fears about the effects of the surgery on one's appearance; (e) fears about the surgery's effects on interpersonal relationships; and (f) depression.

According to Drellich and Bieber (1958) many women feel that undergoing an operation that entails the surgical removal of the uterus

and or ovaries is a punishment for past misdeeds and or taboo sexual behavior leading many women into depression. In their study it was found that women who were mildly depressed pre-operatively and were able to foresee some benefits from the surgery displayed the best adjustment with only minor psychological difficulties. Those women who didn't exhibit any worry or fear were inhibiting extreme anxiety which erupted into post-operative panic. These patients with no pre-operative anxiety with respect to the loss of their uterus also presented with post-operative depression and a number of disabling psychosomatic symptoms.

Richards (1974) found that 36.5% of the women in their study who had a hysterectomy required treatment for their depression. In a comparison of 56 women who had a hysterectomy with 56 women who had undergone other operations it was found that 70% of the hysterectomy patients suffered post-operative depression as compared to only 28% of the post-operative controls.

According to Polivy (1974) depression can be found in 40% of the women post-operatively. Polivy's study delineated five warning signals for identifying those women who are at risk in developing post-hysterectomy depression: (a) those with previous psychiatric hystory; (b) medical necessity, if the surgery is not completely necessary there is a greater chance of depression; (c) marital problems; (d) lack of pre-operative anxiety; and (e) the presence of misconceptions and fears about the effects of the surgery.

Wolf (1970) suggested that depression is the most frequently reported symptom and the most frequent psychiatric or physiological complication. An important underlying common denominator of all

depressive illness is a psychologically significant sense of loss of something which is essential for a continued acceptable existence plus a concomittant loss of self esteem (Wolf, 1970). The loss of the uterus has a different meaning for each woman. If one considers the importance of the uterus in a woman's adaptation to her life situation and her self image then it is not surprising to observe such a large number of women suffering from post-operative depression (Turpin, 1979).

Another perspective on the onset of the post-hysterectomy depression was presented by Melody (1962) who suggested that the depressive reactions that follow hysterectomy are usually precipitated by a traumatic social event that the patient perceived as in fact threatening or a symbolic act of disapproval or rejection. Hysterectomy to the woman who becomes depressed post-operatively comes to mean rejection from the social milieu in which she had previously been in. In the Melody study it was found that the patients who displayed the syndrome of depression were women who had demonstrated over the years prior to surgery a tendency to react to any threat with an adaptive pattern of depression.

In a study by Newton and Baron (1976) in which the age of the women was studied as a possible factor in the development of post-operative depression it was found that the risk of depression declined with increasing age. The rate of depression was found to be markedly higher for those women who were younger when they underwent the surgery.

Patterson and Craig (1963) and Wolf (1970) found that women from a lower socio-economic status seem to feel more depressed due to the feeling of being defeminized. There is a greater prevalence of depression in such groups due to the belief by a higher percentage of

these women that a woman's function is to bear children and that without a womb she is no longer a woman.

Studies have been carried out trying to ascertain if it is the hysterectomy per se that specifically triggers depression or perhaps it is the specific issue of sterilization that is the cause of depression. Ellison (1965) reported a 30% rate of depression among twenty patients who had undergone a tubal ligation compared with an 80% rate in twenty-five women following a hysterectomy indicating that sterilization may not be the most important factor. Similar results have been reported by Bargalow, Gunther, and Johnson (1965) where it was found that hysterectomy patients had a poorer long-term psychological response compared with women who had undergone a tubal ligation. Ananth (1978) stated that the problem of whether hysterectomy per se, or sterilization in general resulting in depression is not yet resolved. However, evidence seems to indicate that hysterectomy does induce depression.

Specific fears unrelated to the impact of the operation on sexual functioning seem to occur in maladaptive women post-operatively (Raphael, 1976). Raphael further suggested that whether sexually responsive or not in the past, women are concerned with their ability to participate sexually post-operatively. Many women after the surgery view themselves as desexed thus unable to satisfy their husbands or sexual partners sexually. According to Youngs and Wise (1976) there is a diminished ability to respond sexually, diminished sexual attractiveness, and the feeling of owning defective equipment. In addition, some women fear that this operation will render them more masculine, unattractive, fat, and old. Smith (1979) wrote that for most women the drive to reproduce is the essence of femininity and the taking

away of this ability leads the patient to feel sexually undesirable. In a study by Menzer, Morris, Gades, Sabbath, Rabey, Plant, and Sturgis (1975) it was demonstrated that women who adjusted properly sexually either denied themselves feminine gratifications or resolved satisfactorily the loss of reproductive functioning.

Amias (1975) suggested that the removal of the uterus abdominally or vaginally need only entail a temporary restriction of sexual activity. He proposed that in the long run far from hysterectomy marking a stage in the downfall of sexual functioning, the removal of the uterus should result in an increase in sexual activity and enjoyment. Removal of gynecological disabilities by the surgery will generally produce the expected gratifying results both in the patient's physical well being and also in the restoration and improvement of her sexual life. Amias suggested that if maladjustment persisted the cause should be sought elsewhere and not in the surgical procedure itself.

Dennerstein, Wood, and Burrows (1977) found that the fear of being altered sexually was the most common pre-operative anxiety in the women followed by their study. A negative sexual expectation of the operation was significantly associated with a poor sexual outcome and the loss of sexual desire post-operatively. Dennerstein et al (1977) outlined four reasons for this poor sexual adjustment: (a) the fear of losing their femininity; (b) the lack of knowledge with respect to their sexual anatomy and physiology; (c) negative expectations of friends and family; and (d) the reactions of their husbands or sexual partners. Dennerstein et al warned that even though the loss of sexual interest is a common accompaniment of depression it appears that in their study it was a specific phenomenon unrelated to a patient's reported feelings of

physical and mental well being. They concluded from the results of their study that psychological factors particularly the expectation that the operation will adversely affect sexual relations is responsible for the deterioration in sexual relations following a hysterectomy.

Inherent in this operation are many possible losses but by far the most important loss to the woman is the loss of her child bearing ability (Drellich & Bieber, 1958). Raphael (1976) suggested that a large percentage of women across all societal stratas consider themselves not really women when they cease being able to have children.

Investigators have illustrated that even the loss of the menstruation period is not easily accepted. A woman's period is at times seen as an index of femininrty and looked upon positively as an indication of womanhood. Menstruation is seen by some women as being a constant monthly "cleaning out" and regulatory process so that many women become concerned as to how they will be cleansed of their "bad" blood (Raphael, 1976). This factor once again according to Raphael suggests that a woman's understanding of her bodily functions and of what really happens when she undergoes a hysterectomy is extremely variable and rarely adequate.

A whole range of interpersonal relationships may be influencing factors in the perception of this operation long before it comes to the woman's own personal reality. In most instances the woman will have spoken about the surgery and its possible effects with others, noted and have been affected by their responses and ultimately formed her own picture of her family's and social group's response to her after the surgery (Youngs & Wise, 1976). The husband's/partner's involvement throughout this experience resulting in feelings of acceptance and

support is essential element for an uneventful adjustment. Disapproval, lack of support, or negative feelings about the surgery will likely result in anxiety and distress. Thus, it is important that the women undergoing this procedure are aware of the reality of their situation so not to be adversely affected by misdirected but well intentioned information by significant people in their life.

According to Brennan, Spano, and Jackson (1979) it appears that post-hysterectomy women have more family and interpersonal problems and disruptions than women similar in all respects except for the fact that they did not undergo this surgical experience. Their study suggested that the hysterectomy women are more likely to be involved in a divorce or separation, tend to identify themselves as suffering from somatic complaints and are more likely to use psychotropic medication. With respect to the prevalence of somatic complaints Richards (1974) found that hysterectomy patients suffered from urinary symptoms, extreme tiredness, headaches, dizziness, or insomnia in higher percentages than women who had had operations other than hysterectomy. Other diseases that arise more frequently after hysterectomy are cholecystitis and cholelithiasis which occur two to three times more often, ulcerative colitis, diverticulitis and other diseases of the intestine are three times more common (Richards, 1974).

The findings of these studies provide a basis for the justification of formulating a preventive approach for the woman undergoing a hysterectomy aimed at lessening her subsequent health risk. In general, the stress associated with this form of surgery no doubt seems most likely to precipitate adverse psychological reactions in patients who are not prepared to deal with this stress.

Newton and Baron (1976) suggested that adverse reactions can be minimized if the woman is given the right pre-operative preparation. Hysterectomy seems to injure the patient psychologically in proportion to her ignorance about the consequences and results of the surgery and the extent to which her interpretive reality of the surgery includes negative thoughts, attitudes, ideas, expectations, and emotions.

Keith (1980) stated that a preventive approach should be educative and supportive rather than strictly treatment oriented. He suggested that such a program should have the following goals: (a) to enhance the teaching and learning process through groups; (b) to provide an understanding of self and body following a hysterectomy; (c) provide group strength; and (d) to reach the emotional levels of the patient. Through a pre-operative program anxieties and misconceptions can be alleviated and emotional support given. Such a program may also help identify the woman who may be at risk for maladjustment. Thus education and preparatory counselling of the patient can be directed toward individual concerns and apprehensions, the reduction of misinformation and fears and the establishment of expectations of satisfaction. Raphael (1976) suggested that a thorough psychological approach should contribute to the lessening of the overall morbidity and psychiatric morbidity in particular of this surgical procedure.

When examining the psychological side of any surgical procedure, especially this one, it is important to be alert to the variety of meanings that illness has for individuals. The principle that is of utmost importance is that people respond to reality as they see it. To understand the patient it is essential to know how the patient experiences the environment in relation to her overall organization.

Pre-operatively, the hysterectomy patient tends not to see the objective reality, but is usually keenly aware of her interpretive reality. It is crucial for those developing a preventive program to appreciate this fact so that such a program would be effective.

In summary, as one can observe from the various studies a woman undergoing a hysterectomy whether for benign or malignant indications is likely to experience some psychosocial stress. For some women this procedure may be a crucial life experience and how she fares will depend upon the preparation that she undergoes pre-operatively. If this crisis is poorly resolved the patients may suffer substantial long standing psychological impairment subsequently.

Cognitive Behavior Modification

CBM has recently started to grow rapidly in use and has generated a considerable amount of research activity both with adults and children. The host of clinical problems tackled by CBM is indeed impressive, ranging from phobias through self control problems to the extension to such new populations as the aged, the brain damaged, and those at high risk (Meichenbaum, 1979).

The field of cognitive behavioral modification has evolved out of an attempt to link the technology of behavior therapy with the clinical concerns of cognitive semantic therapists. What one says to oneself or the self statements and images that one emits prior to, accompanying, and following the overt behavior are becoming an increasingly important area for therapeutic intervention.

Meichenbaum (1979) has pointed out that a "uniformity myth" should not be imposed upon CBM since it includes a wide range of treatment procedures and different theoretical views about the role that

cognitions play in behavior pathology and behavior change. Each technique in the CBM school provides different prescriptions about the best point of intervention in the chain of cognitive affect-behavior and environmental consequences. Some CBM interventions frontally attack beliefs, where as others encourage clients to produce incompatible behaviors before focusing on expectations, beliefs, and so on (Meichenbaum, 1979). The CBM techniques also differ in terms of the relative emphasis placed on formal logical analysis, the degree of directness with which the therapeutic rationale and procedures are presented and the relative reliance on adjunctive behavior therapy procedures (Meichenbaum, 1979). Arnkoff and Mahoney (1978) suggest that the followers of the CBM school though diverse have three elements in common: (a) the belief that humans develop adaptive and maladaptive behavior and affective patterns through cognitive processes; (b) these cognitive processes can be functionally activated by procedures that are generally isomorphic with those of the human learning laboratory; and (c) the resultant task of the therapist is that of a diagnostician-educator who assesses maladaptive cognitive processes and subsequently arranges learning experiences that will alter cognitions and the behavior and affect patterns with which they correlate.

Meichenbaum (1979) suggested that there is no clearly agreed upon or commonly accepted definition of CBM and even if one can be found such a definition may prove to be too restrictive.

The literature employing CBM with adults as noted earlier in this review are extensive and somewhat varied. Thus only a representative sample of these studies will be presented.

Depression. The major CBM work in the area of depression has been

carried out by Beck, Rush, Shaw, Hollon, and Emery (cited in Meichenbaum, 1979). Shaw (1977) evaluated the effectiveness of Beck's cognitive treatment and a behavioral treatment of depression and a nondirective group and waiting list control group. The cognitive modification treatment was found to be more effective than the behavioral approach as evident in self report and objective clinical ratings. The cognitive treatment focused on the depressed client's negative conception of self, the external world and the future. Fuchs and Rehm (1977) in another study employed a self control-based intervention with depressed female volunteers. The treatment consisted of a six week group program that focused on monitoring, self evaluation, and self control skills. In comparison with a non-specific group therapy and a waiting list control group the self control group demonstrated a significant improvement immediately following treatment and at a six week follow-up assessment. A similar study was conducted by Shipley and Fazio (1973) in which subjects were assigned to either a functional problem solving or a waiting list control group. Pre-treatment to post-treatment comparisons over the three week treatment period demonstrated significantly greater improvement for the functional problem solving subjects.

CBM interventions appear to be effective treatment strategies in depression. There are theoretical reasons for considering the role of cognition in depression along with strong practical reasons for incorporating such procedures in clinical practice.

Interpersonal Anxiety. An approach to anxiety reduction that teaches clients to reevaluate realistically the consequences of their behavior in various situations was studied by Meichenbaum (1971) in

which he found that RET was more effective than desensitization when a client's speech anxiety was accompanied by anxiety in other situations. Cacioppo, Glass, and Merluzzi (cited in Meichenbaum, 1979) studied the role of an individual's self statements with respect to social anxiety. They identified high and low socially anxious males and then prepared them for an encounter with a female. The results demonstrated that high anxiety subjects spontaneously generated more negative self statements than did low socially anxious males. Kanter and Goldfield (1979) (cited in Kendall & Hollon, 1979) suggested that individuals experiencing high levels of anxiety might encounter difficulties in applying a cognitive restructuring procedure. Their results illustrated that rational restructuring was more effective than desensitization in reducing stait and trait anxiety and irrational beliefs. They further found a greater tendency for rational restructuring to result in the generalization of anxiety reduction to non social situations. Unassertive behavior has also been the target of cognitive restructuring procedures. Eisler, Frederickson, and Peterson (1978) focused on the role of cognitive variables in the expression of assertiveness in psychiatric patients. Behaviorally assertive patients were found to expect more positive or reinforcing consequences from their interactions with others than did unassertive individuals. In three studies conducted by Halford (1978) (cited in Meichenbaum, 1979) it was found that a social skills approach plus a cognitive restructuring treatment was more effective in fostering assertiveness than either treatment package alone.

It can be deduced from the findings of the cited articles that social evaluative anxiety can be effectively reduced by an intervention procedure that trains clients to reevaluate realistically their behavior

in social situations and that focusing on cognitive factors enhances treatment efficacy for social anxiety problems.

Self-Control Problems. Meichenbaum (1979) suggested that the CBM approach in the treatment of alcoholism has as its premise that an individual's expectancy about the alcoholic content of the drink, regardless of its pharmacological properties is a crucial determinant of the drinking behavior. A study by Briddell (1979) (cited in Meichenbaum, 1979) confirmed this premise by demonstrating that the expectation that one is drinking alcohol had more effect than the presence of alcohol per se. They further illustrated the importance of a cognitive set in mediating the arousal effects of alcohol.

Dunkel and Glaros (1978) studied eating problems and found that increased efficacy accrues by adding a self instructional training to stimulus control procedures in the treatment of obesity. In this study obese subjects were taught to covertly "talk" to themselves in ways that would enable them to cope with hunger and the frustration of their desire to eat.

With respect to stopping smoking; studies have failed to produce the maintenances of cessation of smoking. In one such study Miller (1978) (cited in Meichenbaum, 1979) examined the role of cognitive restructuring and regular paced smoking in smoking cessation. The subjects stopped smoking but were not able to maintain this behavior over time. Further research must be carried out in this area.

The range of problems cited here is representative of the kinds of research being done today in the CBM field further demonstrating the diversity of the CBM approach.

Stress Inoculation and Stress Reaction. Preventive psychiatry

lacks an adequate scientific basis according to Henderson, Montgomery, and Williams (1972). Advances in behavior therapy techniques may make an immunological model applicable. The resistance of individuals to adverse life events may be enhanced by previous exposure to stressful stimuli of increasing magnitude. According to Henderson et al. (1972) anxiety or stress appear to be feasible target symptoms. They propose that identifiable high risk groups in a population can be given an increased resistance to specified psychiatric symptoms by previous exposure to relevant stressful stimuli. The essence of this proposal is that exposure would confer immunity to specified stresses.

Before discussing the preventive approach known as Stress Inoculation it is of importance to note the major problem of preventive work, that is, how to get the subjects who really need the treatment to participate. For example, in one study Lindquist and Lowe (1978) (cited in Meichenbaum, 1979) developed prevention programs for college freshmen. In their study only 7% of the invited subjects expressed an interest in participating with further indications that those who really needed the help were least likely to participate. Thus as is illustrated by this study it is one thing to be able to identify a population at risk but is quite another to be able to work with them.

Novaco (cited in Foreyt & Rathjen, 1978) stated that stress can be understood as a state of imbalance between environmental demands and the response capabilities of the person or system to cope with these demands. The term stress has been borrowed in the psychological literature from engineering, where the usage refers to an external force applied to a physical structure that produces a strain on the structure. The resultant strain is a function of the magnitude of the stress and of

the properties of the structure (Novaco, 1978). Lazarus (1966) suggested that psychologically the term "stressor" denotes the external forces experienced by the organism and other stress effects which are determined by the characteristics of the structures on which they impact. Novaco (1978) distinguished between the terms stressor and stress. Stress he stated is a hypothetical state that is induced by environmental forces and manifested by reactions at various physiological, behavioral, and social levels. This analysis distinguishes stressors as aversive events that exert demand for adaptation, and stress as a hypothetical state denoting a condition of imbalance between demands and resources for coping. Stress Reactions on the other hand are seen as the adverse health and behavioral consequences of exposure to environmental demands (Novaco, 1978). According to Novaco (1978) one can clarify the context in which the term "Stress Inoculation" is used by keeping these definitions in mind. This CBM model is applied to human stress and adaptation at a particular level of analysis, namely the psychological.

Janis (1965) in his research on stress concluded that one's ability to cope with an impending stressful situation requires: (a) preparatory communication regarding the sensations to be experienced and the probable changes; (b) a reassuring statement, which indicates how the potential changes will be kept under control or mitigated; (c) recommendations of what can be done to protect the individual or reduce the damaging impact of the potential changes; and (d) the belief or expectation that these recommendations will be effective in reducing the threat. Meichenbaum (1975) suggested that inherent in Janis's conclusions is an outline or the ground work for the development of the

Stress Inoculation model.

As was previously noted Stress Inoculation is a multifaceted approach that does not emphasize one treatment strategy. As the name of this procedure implies subjects are provided with a prospective defense or set of skills to deal with future stressful situations. According to Hussian and Lawrence (1978) Stress Inoculation assumes that the client's internal dialogue is an important factor in anxiety reactions and that the modification of cognitions is as important as the modification of overt behavior. According to Jaremko (1970) the following factors make Stress Inoculation a useful and practical tool: (a) it involves the client in the development of the procedure; (b) it is intuitively meaningful to the client; and (c) most importantly, it works.

A major concern of CBM researchers has been the use of cognitive and behavioral techniques to treat a variety of stress reactions. The new thrust in this area has been the use of Stress Inoculation procedures on a preventive basis (Meichenbaum, 1979).

Pearlin and Schooler (1978) (cited in Meichenbaum, 1979) examined the range of situations in which concrete coping behaviors are most useful. They found that consistent with the Stress Inoculation approach a varied repertoire is more effective than having a single coping response regardless of its efficacy. Their study concluded with a statement indicating the need for research on Stress Inoculation procedures for high risk populations.

Kendall, Williams, Pechacek, Graham, Shisslak, and Herzoff (1977) used a variation of the Stress Inoculation treatment regimen to intervene with catheterization patients. This training approach relative to an attention placebo group and hospital control groups

demonstrated greater post-surgical adjustment.

In an interesting and novel study Mygdal (1978) (cited in Meichenbaum, 1979) assessed the relative efficacy of anxiety management and Stress Inoculation and two control groups in reducing stress in student teachers. Neither approach was found to be effective but it did open the field of attempting to prevent a most prevalent problem that is, teacher stress.

Holroyd and Andrasik (1978) studied tension headaches and found Stress Inoculation to be effective in the reduction of these headaches.

Field experiments repeatedly indicate that preparatory communications containing forewarnings combined with realistic reassurances functions similarly to Stress Inoculation (Janis, 1958; & Meichenbaum, 1977). Preparatory information functions as a form of Stress Inoculation if it enables an individual to increase his or her tolerance for post-decisional stress by developing effective reassurances and coping mechanisms. Stress Inoculation is usually administered after a decision is made but before it is implemented. The underlying principle seems to be that accurate preparatory information about an impending crisis gives an individual the opportunity to anticipate the loss, to start working through the anxiety and grief and to make plans to be able to cope more adequately (Janis, 1971).

According to Janis (1975) the Stress Inoculation procedure can be expected to be effective for any decision or situation that entails undergoing painful treatments and deprivations before well being improves.

Studies focusing on a component analysis of the Stress Inoculation package are now being carried out by Jaremko (1979), Horan (1978), and

others. Horan (1978) found that the education phase of Stress Inoculation alone does not produce any therapeutic effects while the coping skills component alone has pronounced effects on pain tolerance. The study concluded that the Stress Inoculation approach resulted in improved pain coping ability over and above that which might be attributed to education about pain and placebo factors. Jaremko (1978) analyzed each phase of the Stress Inoculation approach. It was found that the most important aspect of the Education phase is to provide the client with a plausible framework for understanding anxiety. According to Jaremko (1979) a reaction to a stressor involves two major elements: (a) heightened arousal; and (b) negative self statements. Meichenbaum (1976) suggested that the client must view the stress reaction as a series of stages rather than one automatic fear response. The stages that he suggests are: (a) preparing for a stressor; (b) confronting a stressor; (c) being overwhelmed by it; and (d) self reinforcement for having coped.

The second phase in the Stress Inoculation package is the rehearsal or skills training phase. This stage is involved in the development of a cognitive strategy which can be defined as a specified way of perceiving or dealing with a stressor. This is the phase in which coping skills are taught. Holmes and Houston (1974) suggested that research findings dealing with the reduction of stress indicate that coping strategies allow the individual to appraise the situation as less threatening than those people who were not provided with coping methods. Speisman, Lazarus, Mordkoff, and Davidson (1964) found that the same stimulus may be either a stressor or not, depending upon the nature of the cognitive appraisal the individual makes regarding the significance

of it.

Jaremko (1979) suggested that this phase can be broken into two components; (a) physical coping which is done by deep breathing, mental relaxation, etc. Researchers are not sure if this physical coping works or that it may be nothing more than a practice area in which to demonstrate to the client that one can learn to cope; and (b) the cognitive restructuring component which is held by many to be the potent ingredient in the Stress Inoculation package (Jaremko, 1979). This phase changes what one says to oneself about the target problems. The procedure involves collaborating with the client identifying his or her negative self statements and then teaching the client to generate positive coping statements to replace the negative ones. The purpose of the self statements and more generally of the cognitive-skills training was to have the participants develop a problem solving task oriented set, thinking of response alternatives rather than viewing each provocation as an ego threat. Throughout this training phase the participants are treated as collaborators who generate their own personal experiments with ways of coping. Hussian and Lawrence (1978) point out in their study that merely identifying negative self statements is not enough but that the negative statements had to be replaced with more positive coping statements.

Jaremko (1979) suggested that there are at least four components in cognitive restructuring: (a) exposure; (b) identification of the negative self statements; (c) the generation of coping self statements; and (d) a combination of both seems to be the best. In a study by Klepac, Hague, Dowling, and McDonald (1981) it was revealed that instructions in cognitive coping skills and the interaction of

relaxation and exposure to a stressor were associated with increases in tolerance for the stressor employed in the Stress Inoculation package. According to Meichenbaum (1977) the client must learn replacement statements as the point of reappraising stress as a series of phases. Further analysis was carried out by Glowgower, Fremouw, and McCrosky (1978) where it was found that while extinction and identification of negative self statements produces some improvement the coping statement component is the primary factor in the cognitive restructuring procedure.

The concluding phase of this multifaceted approach is known as the Application Component. According to Jaremko (1979) this phase may be affected by whether the practice stress is real or imagined and the amount of the exposure. Meichenbaum (1972) demonstrated that a coping model procedure in which the person imagines him or herself failing to cope and then able to regain composure produces treatment effects far greater than a mastery model procedure in which the individual imagines always being in control. Sulls and Mullen (1974) have suggested that the uncertainty about control over aversive events has significant effects on health. They conclude that the certainty of control reduces and the uncertainty of control augments the stressful impact of undesirable events.

There is a sizable literature indicating that both actual and perceived control over present or impending harm plays an important role in coping with stress. Some interventions for increasing control give patients a great deal of information about what is to be expected. In one such study by Johnson and Leventhal (1974) with patients anticipating going through a gastroendoscopy they enabled them to make

plans for coping with the predicted stress to enhance feelings of control. By increasing this feeling of control they were able to reduce significantly the degree of pain experienced, the need for medication following surgery, and the time needed for post-operative recovery. Focusing attention on the task at hand may also increase predictability and control. Pranulis, Dabbs, and Johnson (1975) found that patients showed better reactions to anesthesia and surgery when their focus of attention was directed away from their own emotional reactions as passive recipients of treatments, to specific tasks that made them feel more in control as active collaborators with the staff. The research findings seem to suggest that the perceived feelings of control that the Stress Inoculation procedure instills in the individual are critical in the individual's successful mitigation of the stressful situation.

In summary, the Stress Inoculation training involves providing the individual with a plausible framework for understanding the nature of emotion and of stress reactions, training and rehearsal of coping skills and exercising these new coping skills under actual stress conditions. Although information plays an important role, Stress Inoculation goes well beyond information in helping patients to cope. A variety of therapeutic techniques are woven into the training. These include didactic training, discussion, modelling, self instructional rehearsal, and reinforcement (Meichenbaum, 1977).

Stress Inoculation was developed to modify the attitude of learned helplessness by the training of coping skills. The learned helplessness literature suggests that having some instrumental response at one's disposal and being able to perceive the relationship between one's actions and the termination of an aversive event breaks this pattern of

helplessness (Seligman, 1973). Stress Inoculation gives the individual the feeling of learned resourcefulness. Meichenbaum (1975) suggested that given the increasing demand for people to deal with stress, the possibility of using the Stress Inoculation procedure for prophylactic purposes is both feasible and exciting.

Review of Self Instruction Therapy

According to Meichenbaum, (1973) self instructional training was developed from two sources: (a) Ellis's (1962) RET and its emphasis on irrational self talk as the cause of emotional disturbance; and (b) the developmental sequence according to which children develop external speech and verbal-symbolic control over their behavior. Meichenbaum suggested that in the latter analysis children's behavior is first regulated by the instructions of other people and subsequently by acquiring control over their own behavior through the use of overt self instructions that they ultimately internalize as covert self instructions. According to Arnkoff and Mahoney (1978) there is a sizable body of literature demonstrating that the nature of one's self talk can dramatically influence one's performance of widely varying tasks. In one of the earliest studies in this area Meichenbaum, Gilmore, and Fedoranicius (1971) found that training speech anxious clients to discriminate and alter maladaptive thought patterns, resulted in improvement over attention-placebo, and no treatment control groups.

In looking at self instructional therapy as an approach stemming from the RET Heritage Arnkoff and Mahoney (1978) suggested that the differences between the two are perhaps more difficult to enumerate than their similarities. Both these models emphasize the importance of self statements and thought patterns in adaptive and maladaptive behavior.

However, there are important differences in technique and focus. These researchers suggest that Ellis focuses on a set of "core irrational ideas" while the proponents of self instructions seem to be more interested in idiosyncratic thought patterns, and have focused more attention to the role of graduated practice in their cognitive training package. This approach emphasizes practical coping skills for dealing with problematic situations. Arnkoff and Mahoney (1978) stated that the major emphasis of RET is on the destruction of maladaptive beliefs, while the self instructional approach combines this with a constructive phase of skills development. They further suggest that it is not the content or incidence of irrational beliefs that differentiates normal and distressed people but their learned means of coping with these beliefs.

Self instructional therapy is designed to make clients aware of their thoughts and to train them to produce compatible self-instructions and compatible behaviors. The therapy rationale given to the client indicates that treatment would be directed toward: (a) helping the client to control his or her physiological arousal; and (b) substituting positive coping self statements for the anxiety-engendering self statements. These self statements encourage the individual to: (a) assess the reality of the situation; (b) control negative, self defeating anxiety engendering ideation; (c) acknowledge, use, and possibly relabel the anxiety they were experiencing; (d) prepare themselves to go through with the task; (e) cope with intense fear that they might experience; and (f) reinforce themselves for having coped (Meichenbaum, 1977).

Meichenbaum (1974) has characterized self instructions as a form of

"cognitive prosthesis". He stated that verbalizations or cognitive tasks may facilitate behavior in several ways. Overt verbalization may serve to organize information on the task or stimulus array and to assist the subject in generating alternatives regarding the solution. Verbalizations also may aid the subject in evaluating feedback by providing verbal mediators to distinguish relevant and irrelevant dimensions. According to Meichenbaum (1977) self instructions play a direct role in changing behavior, one analogous to that served by interpersonal instructions.

The results of several studies have shown that Self Instructional training can produce significant changes in cognitive and behavioral functioning in clients with test and speech anxiety, in impulsive children, and in institutionalized schizophrenics (Meichenbaum, 1972, 1975, 1977; Meichenbaum & Cameron, 1973).

Recently researchers have begun to investigate the self instructional component of Stress Inoculation. Hussian and Lawrence (1978) examined the self-instructional aspect and found that merely identifying negative self statements was not enough, but that the negative statements had to be replaced with more positive coping statements.

Within a self instructional Stress Inoculation framework, the degree of treatment generalization is a function of the common set of responses, mainly self instructional, that are emitted across situations. In other words, the degree of consistency of behavior across situations is a function of the likelihood that the same set of covert discriminative stimuli or self statements will be elicited. Thus Meichenbaum (1978) suggests that training clients to emit a set of self

instructional coping responses that are appropriate across stress inducing situations will likely enhance treatment generalization.

Psychological Aspects of Surgery, Psychological Preparation for Surgery

Coping strategies refer to intrapsychic activities as well as to communications and actions of the ill individual aimed at the reduction of distress and suffering caused by the illness. Such strategies are adaptive when they contribute to prompt recovery of pre-surgical functioning. Lipowski (1971) suggested that coping strategies are directly related to the individual's interpretation of and attitudes toward the surgical situation. Such meanings reflect past personal experiences, knowledge, cultural backgrounds and beliefs. The meaning is both unconscious and conscious and functions as a cognitive nucleus which influences both the emotional and motivational responses to the surgery and to the coping strategies employed.

The majority of patients facing surgery of any magnitude seem to be extremely anxious pre-operatively (Janis, 1958). Janis stated, that the individual when facing surgery is confronted with a sudden disruption of their customary life-style and is involved in a situation which entails pain, physical discomfort and the possible threat of death.

Most experimental studies dealing with the preparation of patients for surgery have been published since 1970. According to Auerbach (1973) the first major empirical study of the effects of surgery induced stress on the emotional reactions and subsequent adjustment of patients was Janis's (1958) study. Janis suggested that although most people experience some fear when faced with the surgical situation there is a range of fear levels with individual differences in the overall perception and interpretation of the various stimuli associated with

surgery.

With respect to studies dealing with preparatory interventions one can observe considerable variation regarding the types of surgical procedures studied ranging in severity from open heart surgery to minor surgical procedures such as a hernia. In most of the studies intervention procedures were administered partially or exclusively pre-operatively. The procedures employed varied both in terms of content and format of delivery.

According to Auerbach and Killman (1977) invasive medical procedures such as surgery can be viewed as a crisis because there is often inordinate stress and acute elevations of anxiety. Due to the patient being available immediately prior to the crisis, methods for anxiety management could be effectively provided. Supplying the patient in crisis with effective methods to deal with stress should also improve the patient's behavior and adjustment during medical procedures themselves (Kendall, Williams, Rechacek, Graham, Shisslak, & Herzoff, 1979).

Preparation has always been an integral part of pre-operative procedures. According to Reading (1979) it is essential that one distinguishes between psychological preparation from preparations of other kinds. In physically preparing patients for surgery a number of steps are routinely taken: (a) patients are specially clothed; (b) showered; (c) fasting; (d) cleaning of bowels with an enema; and (e) pre-operative injection. With respect to psychological preparations, Janis and Leventhal (1968) wrote that emotional inoculation should be able to reduce the incidence of maladaptive and pathogenic reactions to stress by giving surgical patients certain types of affectively potent

information that provides appropriate cognitions and attitudes about what is in store for them. The first important barrier for successful emotional inoculation is to break the patient's inappropriate use of denial. A second function of successful preparatory work is to supplement the patient's spontaneous protective measures by teaching him: (a) what can be done to ward off the objective danger; and (b) what reassurances can be dependably counted upon for reducing fears at the time when the danger is actually at hand (Janis & Leventhall, 1968). This process is called emotional inoculation because it may be analogous to what happens when antibodies are induced by injections of mildly virulent viruses. Reading (1979) suggested that preparatory work when fully successful may extend to the reduction of requests for pain medication and to the patient's length of stay in hospital. In one such study carried out by Egbert, Battit, Welch, and Barbara (1964) in their preparatory program their subjects asked for less pain medication and were discharged earlier from the hospital at an average of 2.7 days as compared to the controls. Putt (1970) when working with ulcer patients found the group prepared with quasi psychotherapy and information as compared with the control group also had a shorter stay in hospital and less post-operative pain as measured by the amount of pain medication requested. A similar study by Wolfer and Vistainer (1975) found results similar to those of the previous studies.

In a study by Langer, Janis, and Wolfer (1975) the effects of two preparation strategies for reducing stress were assessed. One emphasizing cognitive control of anxiety provoking events and the other providing realistic information and self talk. Patients were exposed to either the coping strategy, preparatory information, both, or neither.

It was found that the knowledge of the coping device was the best strategy in reducing stress. They suggested that when preparatory information is presented in a brief pre-operative session the patients may acquire a more realistic conception of what to expect and thus spontaneously develop some effective coping mechanisms.

Fear Levels. Janis and Leventhal (1968) suggested that the role of realistic information is largely that of evoking a particular level of reflective fear. Threatening situations often provoke two types of reactions that may compete and interfere with one another: (a) emotional reactions that include subjective and autonomic signs of emotion and behavior; and (b) danger oriented reactions that includes awareness of the objective features of the threat agent and behaviors designed to control the degree of potential danger. Fear according to Janis and Leventhal (1968) produces a variety of behaviors that sometimes facilitate and prevent performance of danger-control behaviors. The question proposed by this study was how can a patient be prepared to become less reactive to emotional cues and more responsive to instructions on how to control danger. Johnson (1973) suggested a solution to this question. She believed that inaccurate expectations about the sensations produced by a noxious stimulus are the important sources of the maladaptive responses. She concluded that an individual will be less fearful when exposed to a stressor when the individual is able to accurately anticipate how that stimulus will feel. Staub and Kellert (1972) further suggested that distress is reduced by accurate expectations when some time limit is set on the perceived harmfulness of the threatening stimulus.

Janis (1958) presented an emotional drive model which proposed that

in threatening situations fear causes adaptive behavior and that the level of fear determines the adequacy of adaptation. Along with Janis, Marmor (1958) found that situationally determined fear of moderate intensity stimulates the "work of worry" that prepares the patient for the surgery. This theory predicts a curvilinear relationship between pre-operative fear levels and post-operative adjustment with patients having a moderate or optimal level of fear displaying the best recovery and patients with low or high fear levels showing the worst recovery. This model of fear and its implications has stimulated a great deal of controversy and research but as yet has failed to find much support. A counter model was proposed by Leventhal and Dabbs (1971) which depicted threatening situations as containing both danger and fear stimuli. Either one of these stimuli may elicit behavior capable of influencing the environment. However, these authors state that achieving fear reduction need not ensure that the dangers will be controlled and that achieving control of the dangers need not reduce the fear. Their results indicated that those patients with a very low post-operative fear level had a very good post-operative adjustment. With respect to an optimal level of fear and the use of pre-operative information Sime (1976) failed to find a relationship. In his study well informed patients accompanied by high levels of fear pre-operatively received fewer analgesics and sedatives and were hospitalized a shorter period of time than a low fear group who were well informed. The results of this study seem to indicate that patients with a high level of fear may benefit most from information while patients with a moderate to low level of fear the provision of information resulted in a longer stay in

hospital and more requests for pain medication and sedatives.

Personality Characteristics and Preparation. The effects of preparation has also been studied with respect to the personality characteristics of the patients receiving the information. Andrew (1970); Cohen and Lazarus (1973); and Auerbach, Kendall, Cuttler, and Levitt (1976) examined the influence of pre-operative information on recovery and its possible interaction with individual personalities in dealing with stress. Andrew et al (1970) divided the subjects in their study into three groups: (a) copers; (b) avoiders; and (c) non specific defenders. This study demonstrated that avoiders had the worst recovery even if they received the information before the surgery. Conversely, Cohen, and Lazarus (1973) found that patients using vigilant modes of coping generally showed a slower course of recovery. Patients employing avoidant modes of coping did best, contrary to the belief that this coping device prevents the working through of the threat. It seems, according to Reading (1979), that patients respond to information differently and that some patients display a preference for and respond better to ignorance. Auerbach et al (1976) examined the notion of a locus of control and the efficacy of information in facilitating post-operative adjustment. It was illustrated that internal locus of control subjects responded better to specific information and external types to more general information. In tying together these various studies it can be stated that the effects of preparatory information may vary according to the individual's personality.

Preparation and Increased Control. Another aspect of preparing patients for surgery is that preparation may offer control to the patient by the introduction of pain coping techniques and information on

the surgical experience. The providing of coping instructions may promote the perception of personal control, as patients are explicitly informed of the possibility of exerting greater control than they may have thought to be possible. Reading (1979) suggested that this heightened perception of control may contribute to greater stress tolerance and management by reducing the additional stress generated by the feelings of helplessness commonly associated with hospitalization. Rosenbaum (1980) defined self control as the tendency to use cognitions to control emotional and physiological responses, the application of problem solving strategies and the ability to delay immediate gratification and perceived self efficacy. Rosenbaum (1980) developed a scale to assess perceived feelings of self control. This instrument measures an individual's tendency to employ self management methods in the solution of common behavioral problems.

Control as defined by Thompson (1981) is the belief that one has at one's disposal a response that can influence the aversiveness of an event. Thompson stated that cognitive control is the belief that one has a cognitive strategy available that can affect the aversiveness of an event. Cognitive control was earlier defined by Averill (1973) as the processing of potentially threatening material in such a way as to reduce the net longterm stress or psychic costs of adaptation. Lazarus (1974) drew the distinction between strategies for changing the stressful event cognitively (reappraisal of the threat) and those for reducing or changing reactions to the event (relabelling). Bellack and Schwartz (1976) were struck by the high degree of variability amongst subjects in their ability to apply self control methods. According to Bellack and Schwartz all major theoretical conceptualizations believe

that self control is learned and because individuals differ in their learning histories one can assume that there would be substantial individual differences in self control behavior. Averill (1973) and Thompson (1981) proposed that information can engender feelings of control. Information in these studies usually refers to a communication delivered to a person who is a potential recipient of an aversive event. Information and cognitive control usually refers to people's beliefs about control as they undergo potentially stressful events. Introducing cognitive control may change the meaning of the event to one that is within the limits of one's endurance, therefore less anxiety is experienced and the aversive event is more easily tolerated and less disruptive (Thompson, 1981). The meaning of the event is an important element in the efficacy of all preparatory programs.

As suggested by Mandler and Watson (1966) personal control makes it possible for the individual to incorporate a potentially threatening event into a cognitive plan and in so doing reduce anxiety. A note of caution on this aspect of control was proposed by Averill (1973) when he suggested that there is no simple relationship between personal control and stress. What can be stated though, according to Averill is that the stress reducing or inducing properties of personal control depend upon the meaning of the control response for the individual.

Summary of the Objectives of Preparation. Preparation for surgery according to Reading (1979) seems to be an attempt to accomplish the following objectives: (a) The reduction of anxiety; the evidence gathered from the various research studies seems to indicate that there is a linear relationship between pre-operative anxiety and post-operative psychological adjustment. As the studies clearly

indicate there is a critical need to control or manage this anxiety. This may possibly be accomplished by pre-operative counselling, psychotherapy, information sessions, or a combination of all of the above (Reading, 1979); (b) the removal of uncertainty; preparation may improve adjustment by engendering accurate expectations of events. In a study by Staub and Kellert (1972) it was found that the reduction of uncertainty and ambiguity alone has been associated with the lowering of pre-operative distress; (c) increase in personal control; the studies have demonstrated that the provision of coping instructions may promote the perception of personal control as patients are informed and believe that they can take more control for themselves. The knowledge of feeling of control seems to contribute to greater stress tolerance and management by reducing the feeling of helplessness; (d) improvement of the patient's attitude toward the coming surgical procedure; Reading (1979) suggested that it would be beneficial for the patient to be able to look at the positive side of the surgical experience which in the majority of cases would be the reduction of unwanted debilitating symptoms. In one such study Langer et al (1975) suggested that providing coping advice may result in the predominantly negative view of the impending surgery to be reinterpreted positively by redirecting attention towards the favorable aspects of the situation; and (e) provisions of instruction for coping with pain; there have been a variety of coping strategies that have been taught to aid patients in recovering from various surgical interventions. Most of these strategies either directly or indirectly influence cognitive factors and their role in the regulation of emotion and adaptation. The reduction of pain by the use of coping instructions may have wide implications in

terms of both reducing suffering and facilitating healing. Studies have demonstrated that a reduction in the use of analgesic medication leads to an earlier hospital discharge due to the fact that absence of pain may allow the body's natural healing capabilities to be more effectively mobilized to facilitate the healing process.

Limitations of the Research. Auerbach and Killman (1977) suggested that a major weakness found in most of the preparatory studies is that investigators were strictly clinically oriented, that is, rather than evaluating the effects of procedures representing a conceptually based continuum the researchers employed procedures consisting of multiple components rendering it impossible to isolate the important aspect of each preparatory program. An example of this is that in some studies the experimenters combined relaxation procedures and specific information while others combined information with supportive care. Auerbach and Killman (1977) critically suggest that only a minority of studies systematically varied some aspect of the treatment procedure across independent groups of subjects or provided an adequate control group (Andrew, 1970; Auerbach et al, 1977; & Langer et al, 1975).

Reading (1979) and Auerbach et al (1977) suggested that another problem area of these studies is the vast amount of outcome criteria employed by the investigators. The studies used multiple measures of psychological adjustment obtained both pre and post-operatively and of physical recovery post-operatively. The measures employed were; (a) standardized tests; (b) self ratings of mood and pain; (c) behavioral ratings by nurses; (d) the amount of analgesics given; (e) length of stay in hospital and (f) various surgical stress measures, i.e. blood pressure, heart rate, and biochemical measures. Wolfer (1973) suggested

that research has yet to prove the importance of each of these measures with respect to the patient's return to health.

Three studies did not employ adequate control groups or none at all but still reported a superior adjustment to surgery on at least one outcome measure (Andrew, 1970; Egbert, Battit, Welch, & Bartlett, 1964; & Schmitt & Wooldridge, 1973). In these studies treatment consisted of at least two confounding variables. Auerbach et al (1977) pointed out that Schmitt et al (1973) exposed 24 experimental subjects to a nurse and a small group session the evening before surgery. In addition to this, 19 subjects were also seen individualy on the morning of surgery for support, reassurance, and information. There seemed to be no attempt by the researchers to separate the effects of the group session from those of the individual session.

Studies have as yet to assess the impact of the preparatory communication (Auerbach et al, 1977). Due to the adverse effects of anxieties on an individual's ability to recall information it is of importance to assess the level of recall.

Conclusions from the Literature

Experimental studies in preoperative preparation have been restricted to studying the effects of psychological preparation that are evident during the patient's hospital stay. The potential benefits of preparatory programs on the long term rehabilitation and adjustment of surgical patients need to be recognized, and surgical procedures that need a longer term post-operative psychological adjustment should be studied (Reading, 1979). In summary, the studies cited in this review suggest that a significant percentage of women undergoing a hysterectomy are likely to experience some common psychological reactions and

stressors (Polivy, 1974). Thus, making hysterectomy an appropriate surgical procedure for assessing the efficacy of a preparatory program in facilitating a long term post-operative psychological adjustment. Janis (1975) suggested that a multifaceted strategy like Stress Inoculation can be expected to be effective for any situation that entails undergoing painful treatment. Stress Inoculation helps the individual develop an instrumental response when faced with a stressful event rather than just making the individual aware of what is to be expected as is with the distribution of information. This approach of training patients in the development of cognitive coping skills will hopefully increase their tolerance for an impending stressful situation such as a hysterectomy. Other studies suggest that the husband's/partner's involvement with his wife's surgical experience will bring about a better post-hysterectomy adjustment (Young & Wise, 1976). As cited earlier Sulls and Mullen have suggested that the uncertainty about control over aversive events has significant effects on a patient's health.

Based on the literature review the major purpose of this study was to compare the efficacy of a Cognitive Behavioral Modification Program and a Preparatory Information Program in facilitating a post-operative adjustment to hysterectomy and in increasing a patient's perceived feelings of self control which may be predictive of an individual's psychological adjustment.

The following hypotheses will be investigated:

1. Stress Inoculation patients will show a significantly better post-hysterectomy adjustment than both Information and Control group patients.

2. Husband/Partner involvement will be significantly greater for those patients in a pre-operative preparatory program, as compared to the Control group patients.
3. Perceived feelings of self control will be significantly increased in the Stress Inoculation group as compared to the Information group, and greater in the Information group than in the Control group.

CHAPTER III

METHODOLOGY

Principal Aims

The primary objective of this research was an attempt to compare the effectiveness of Stress Inoculation and Preparatory Information in reducing the psychological symptoms of the hysterectomy procedure and in increasing the individual's perceived feeling of self control.

Patients

The study was carried out in a general teaching hospital with the cooperation of seven participating gynecologists. Patients for the study were 72 women between the ages of 30-50 in need of a full or partial hysterectomy for benign reasons who were randomly referred to the study by the participating gynecologists. Patients were randomly assigned to either the Stress Inoculation group, the Information group, or the Control group. Each group consisted of 24 participants. All patients were administered a 36 item questionnaire rating their perceived feelings of self control pre- and post-operatively (Rosenbaum, 1980) (Appendix I). Patients were also given a 28 item questionnaire relating to post-hysterectomy adjustment with instructions to complete it three months following their surgery (Appendix II). An 8 item questionnaire relating to the patient's husband's/partner's involvement was also given to be completed three months following the surgery (Appendix III).

Procedure

Before the experiment began the patients were told the general rationale for the study (Appendix IV & V) and asked to sign a consent

form if they wished to participate (Appendix VI).

Pre-Operatively. The Stress Inoculation group and the Information Preparatory group participants were seen in groups of four or five prior to their surgery. The Stress Inoculation group was seen for a total of two and one half hours while the Information group was seen for one hour. The Control group patients were seen upon admission for twenty minutes. All patients within the three groups were asked to fill in a demographic data sheet (Appendix VII) and the Rosenbaum Self Control Scale before the sessions began.

Post-Operative. The patients in the Preparatory Information group and the Control group were asked to complete the Rosenbaum Scale six to seven days following their surgery. Upon discharge from the hospital the patients in these two groups were given the 28 item Likert type questionnaire measuring post-hysterectomy adjustment and an 8 item Likert type questionnaire measuring husband's/partner's involvement with instructions that they complete these questionnaires twelve weeks following their surgery and return them by mail to the experimenter. The patients in the Stress Inoculation group were seen as a group six to seven days following their surgery for one hour and were asked to complete the Rosenbaum Scale at the end of the session. The patients in this group were also given the 28 item Likert type questionnaire measuring post-hysterectomy adjustment and the 8 item Likert type questionnaire measuring husband's/partner's involvement with instructions to complete these questionnaires twelve weeks following their surgery and return them by mail to the experimenter.

At the end of their participation patients in all the groups were reminded of the confidentiality of the study and told that if interested

they could receive information on the results of the study.

Treatments

Preparatory Information Group. The patients who were randomly assigned to this treatment group were seen in groups of four or five for one hour prior to their surgery.

This stress reducing strategy consisted of supplying the patients with information regarding the hysterectomy and the course of events to be expected while in the hospital. This treatment began with an introduction by the experimenter and the gynecological social worker stating that most people are anxious before an operation which is often due to a lack of information (Appendix VIII). The information was distributed to the patients through a standardized twenty-five minute video film which informed the patient about the nature of their hospital stay and the reasons for such practices as skin preparation, elimination, pre-operative medication, and anesthesia. The second half of the video film focused on the post-operative experience. This segment included information about the patients stay in the recovery room, what patients should expect during their recovery while in hospital, and what is to be expected both physically and emotionally during their convalescence. Additional statements of a reassuring nature called attention to the high quality of the hospital staff (Langer et al., 1975). The patients were told to feel free to ask questions relating to the issues that the presentation brought up, keeping in mind that the technical medical questions should be asked of their doctor. The questions were fielded by both the experimenter and the gynecological social worker. All the information presented on the video was approved by Dr. R. Kinch, Director of the Department of

Obstetrics and Gynecology, of the Montreal General Hospital (the video film is available from the Department of Educational Psychology, University of Alberta).

Stress Inoculation. The patients who were randomly assigned to this treatment group were seen in groups of four or five, twice for a total of two and one half hours prior to their surgery and once for one hour six to seven days after their surgery.

The communication began with a standard introduction by the experimenter and the gynecological social worker stating that most people are somewhat anxious before a hysterectomy but that people can often control their emotions if they know how to. Patients in this group were given a treatment based on the approach by Meichenbaum (1977) (Appendix IX). The Stress Inoculation training consisted of three phases. In the first session, the beginning of the treatment was designed to provide the patient with a conceptual framework for understanding the nature of her reactions to stress. It was explained to the patients that many people cannot tolerate discomfort as they unconsciously indoctrinate themselves with negative self-statements about the situation. The patients were told that any painful or stressful situation can be broken into four phases with the patients having to make appropriate self statements throughout each phase. The phases were then explained and examples were given of appropriate coping statements. In the second session, the patients were asked to implement their own new coping positive self statements that they had generated in their homework assignment and were also given the opportunity to rehearse this new skill both covertly and out loud. Finally, the patients were asked to practice the new learned cognitive strategy by

exposure to the imagined stress.

In the third session six to seven days after their surgery the patients were asked to review their hospital experience and to implement their new learned cognitive coping strategy whenever the need would arise. The patients were then asked to look at their thinking pattern to see if they are employing the appropriate coping processes. Patients throughout the training group were encouraged to ask the experimenter for clarification of anything that was presented to them that they found unclear.

In summary, the Stress Inoculation training involved the labelling of stress, identifying stress related cues, discussing cognitive coping procedures, reinforcing individual coping styles, and rehearsing coping skills (Kendall, Williams, Perchacek, Graham, Shisslak, & Herzoff, 1977).

Control Group. The patients who were randomly assigned to this group were seen individually for approximately twenty minutes upon admission to control for the possible effects on the subjects of the relationship with a psychologist (Langer et al., 1975). The patients were informed about the study and were asked some very neutral questions about their illness and asked to complete the various questionnaires at the designated times (Appendix X). This meeting with the patients followed their regular contacts with their physicians at which time presumably some information about their coming surgery was administered to them.

In summary, the patients were randomly assigned to one of the three groups. The patients of the Stress Inoculation group and the Preparatory Information group were seen prior to their surgery in groups

of four or five. Before surgery all the subjects were asked to fill in a Demographic Data Sheet and to complete the Rosenbaum Scale of Self Control. After surgery all subjects were asked to complete the Rosenbaum Scale and were given a questionnaire measuring post-hysterectomy adjustment and the husband's/partner's questionnaire measuring their involvement with instructions to complete them in twelve weeks and return them by mail to the experimenter.

Dependent Variables

Post Hysterectomy Adjustment. Patients within all three groups were asked to complete the 28 item Likert type questionnaire measuring the patient's adjustment to hysterectomy twelve weeks following their surgery.

Husband's/Partner's Involvement. The patient's husband/partner was asked to complete an 8 item Likert type questionnaire twelve weeks following the surgery measuring their involvement in their wife's/partner's surgical experience.

Self-Control Measure. The Rosenbaum Scale (1980) was developed to assess perceived feelings of self control. The instrument measures an individual's tendency to employ self management methods in the solution of common behavioral problems. Rosenbaum assumed that self controlling responses were cued by an internal event such as anxiety, pain, or thoughts that disrupt the effective performance of a target behavior.

The specific kinds of self controlling behaviors assessed by the Self Control Schedule (SCS) were derived from the stress literature and from the various coping skills therapies (Meichenbaum, 1977).

A break down of the items in the schedule is as follows: (a) twelve items refer to the use of cognitions to control emotional and

physiological sensations; (b) eleven items refer to the subject's tendency to employ problem solving strategies; (c) four items relate to the person's perceived ability to delay immediate gratification; and (d) nine items are indicative of general expectations of self efficacy.

Test-retest reliability was found to be fairly high and stable. Validity was found by comparing the SCS, with the Rotter Scale, and the Irrational Beliefs Test which are conceptually related to the SCS. There was no significant difference in the mean scores of males and females. The male's score $\bar{x}$ = 25.9 and the female's $\bar{x}$ = 27.5.

Inherent in this scale is the assumption that those high on the SCS would tolerate a noxious stimulus longer as compared to those with low scores on the SCS. In a study to verify this assumption, Rosenbaum (1980) found that high self controllers as assessed by this scale reported using more self control methods to cope with the cold pressor than did low self control subjects and HSC tolerated the cold pressor task consistently longer than the LSC. High self controllers are not less sensitive to noxious stimulation than low self controllers but they perceive having greater control over painful feelings and thus are able to tolerate pain better than low self controllers.

Hysterectomy Adjustment Questionnaire (HAQ). In order to assess the patient's adjustment to the surgery the Hysterectomy Adjustment Questionnaire was developed based on a review of the literature (Barber, 1968; Dennerstein, Wood, & Burrows, 1977; Polivy, 1974; Raphael, 1976; Richards, 1974; Wolf, 1970). The initial questions were presented to a panel of Gynecologists, Psychiatrists, and Psychologists. Based on their critique, the questions were revised and further questions

developed. The HAQ was completed by the patients 90 days after surgery.

Demographic Data. The patients were asked before their surgery to complete a Demographic Data Sheet which included; (a) patient's education; (b) patient's age; (c) patient's occupation; (d) patient's marital status; (e) patient's language; (f) type of surgery; (g) husband's/partner's education; and (h) husband's/partner's occupation.

Data Analysis

From the review of the literature, the following null hypotheses were developed:

1. Stress Inoculation patients will show a significantly better post-hysterectomy adjustment than both Information and Control group patients, demonstrating that information alone may not be sufficient.
2. Husband/Partner involvement will be significantly greater for those patients participating in a preparatory program, as compared to the Control group patients.
3. Perceived feelings of self control will be significantly increased in the Stress Inoculation group as compared to the Information group, and greater in the Information group than in the Control group.

To answer the above questions appropriate statistical procedures were carried out and will be presented along with the null hypotheses. Multivariate analysis of variance followed by one way analysis of variance where appropriate were carried out to test for significance. A significance level of $p < .05$ was deemed necessary to reject the null hypotheses.

CHAPTER IV

RESULTS & DISCUSSION

The data collected during the experiment were statistically analyzed. Results of the experiment are described and discussed in this chapter.

Seventy-two patients were randomly assigned to one of the three groups. During the course of the research nine patients chose not to complete the study. Data on these patients as well as demographic data on all the patients will be presented at the beginning of this chapter.

Preliminary Analysis

Background Characteristics. The three groups Stress Inoculation, Information, and Control were found to be similar on relevant demographic and background variables. As detailed in Table 1 the patients were compared on age, education, occupational status (Blishen, 1967), husband's/partner's education, husband's/partner's occupational status, marital status, language, type of hysterectomy, procedure, and completion of the study. Differences among the groups did not attain significance.

Statistical analysis was carried out by the use of a multivariate analysis of variance on the continuous data and a Chi-Square analysis on the categorical data of the patients who discontinued the study after discharge from the hospital with those who finished the study. As detailed in Table 2 & 3 it was revealed that the patients did not differ for the variables of education, age, husband's/partner's education, and perceived feelings of self control both pre and post-operatively. A Chi-Square analysis revealed that the two groups differed significantly with respect to the type of hysterectomy that they underwent ($p=.049$) and with respect to their marital status ($p=.001$). There were no

Table 1

Demographic Variables

Group	Control	Information	S-I
n=	21	21	21
Age	$\bar{X}$=39.9	39.9	41.8
	SD= 5.15	6.5	5.5
Years of Education [a]	$\bar{X}$= 1.42	1.71	1.47
	SD= .75	.85	.68
Husband's/Partner's Education [a]	$\bar{X}$= 1.52	1.76	1.80
	SD= .75	1.22	.88
SES:			
1=Middle Class	42.9 %	66.7 %	52.4 %
2=Working Class	28.6 %	14.3 %	28.6 %
3=Domestic	28.6 %	19.0 %	19.0 %
$\bar{X}$=1.73			
SD=2.36			
SESM:			
Middle Class	28.6 %	52.4 %	61.9 %
Working Class	71.4 %	47.6 %	38.1 %
$\bar{X}$=1.52			
SD=1.50			
Marital Status:			
3=Noncohabitating	0.0 %	4.8 %	4.8 %
4=Cohabitating	100.0 %	95.2 %	95.2 %
$\bar{X}$=3.9			
SD=.256			
Language:			
1=English	81.0 %	81.0 %	81.0 %
2=French	19.0 %	19.0 %	19.0 %
$\bar{X}$=1.2			
SD=.375			
Type of Hysterectomy:			
1=Partial	47.6 %	47.6 %	47.6 %
2=Full	52.4 %	52.4 %	52.4 %
$\bar{X}$=1.5			
SD=.503			
Dropouts:			
Dropouts	12.5 %	12.5 %	12.5 %
$\bar{X}$=1.1			
SD=.33			

a: 1=High School 2=College 3=University 4=Post University

Table 2

Summary Table of Univariate Analysis of Variance

on Dropouts as Compared to Those Who Completed Study

Variable	Completed	Dropped Out	
	n=63	n=9	
	df	F	P
Education	1,70	0.76	ns
Age	1,70	0.80	ns
Husband's/Partner's Education	1,70	0.77	ns
Self Control I (Pre-Operative)	1,70	1.65	ns
Self Control II (Post-Operative)	1,70	1.05	ns

Table 3

Summary of Means and Standard Deviations on Univariate Analysis of Variance on Dropouts Compared to Those Who Completed Study

Variables	Completed n=63		Dropped Out n=9	
	$\bar{X}$	SD	$\bar{X}$	SD
Education [a]	1.7	.83	1.53	.75
Age	42.4	7.4	40.5	5.7
Husband's/Partner's [a] Education	2.0	1.0	1.7	.96
Self Control I [b] (Pre-Operative)	22.0	28.6	34.0	26.02
Self Control II [b] (Post-Operative)	28.4	24.2	38.6	28.3

a: 1 = High School
2 = College
3 = University
4 = Post University

b: The higher the score the more perceived self control

significant differences among the patients with respect to their treatment group, language spoken, socioeconomic status as indexed by the Blishen Scale, and husband's/partner's socioeconomic status (Table 4).

Analysis of the Data

Since many related variables were investigated a multivariate analysis of variance was employed. As the Manova achieved significance (p=.009) a univariate analysis of variance were followed by post hoc Scheffes utilized where appropriate.

The following are the null hypotheses where a direction was assumed a one tailed test was used.

Hypothesis I stated that the Information and Stress Inoculation groups will not differ significantly from each other on post-hysterectomy adjustment as compared to the Control group. As can be seen by Table 5 the univariate analysis of variance indicates that the groups differed significantly at (p=.001). The results of the post hoc Scheffe test shows that the Stress Inoculation treatment was superior to the Control treatment but that the Information group did not differ significantly from the Control group (Table 6).

Hypothesis II had postulated that there would not be a significant difference on post-operative adjustment between the Stress Inoculation and Information group. As illustrated by Table 5 the results of the Anova shows a significant difference between the groups and the Scheffe post hoc test indicates that the Stress Inoculation group differed significantly at (p=.05) from the Information group (Table 6). Thus leading to the rejection of the null hypothesis. Therefore it can be concluded that Stress Inoculation was a more effective treatment.

Hypothesis III posited that the Information group, the Stress

Table 4

Summary of Chi-Square for Those Who Dropped Out as Compared to Those Who Completed the Study

Variable		Completed	Dropped Out
		%	%
Group			
Control	n=21	87.5	12.5
Information	n=21	87.5	12.5
Stress Inoculation	n=21	87.5	12.5
		$x^2=0$ df=2 p=ns	
Language			
English	n=60	85	15
French	n=12	100	0
		$x^2=2.06$ df=1 p=ns	
SES			
Middle Class	n=37	91.9	8.1
Working Class	n=17	88.2	11.8
Domestic	n=18	77.8	22.2
		$x^2=2.21$ df=2 p=ns	
Marital Status			
Noncohabitating	n=5	40	60
Cohabitating	n=67	91	9
		$x^2=11.08$ df=1 p=.001	
SESM			
Middle Class	n=34	88.2	11.8
Working Class	n=38	86.8	13.2
		$x^2=.03$ df=1 p=ns	
Hysterectomy			
Partial	n=38	78.9	21.1
Full	n=34	97.1	2.9
		$x^2=5.3$ df=1 p=.049	

Table 5

Summary of F Table of Multiple Analysis of Variance on Patients' Education, Age, Partner's Education, Self Control I, Husband's Involvement, Self Control II, and Post-Operative Adjustment by Group

Variables	df	F	P
Education	2,60	0.85	ns
Age	2,60	0.82	ns
Husband's/Partner's Education	2,60	0.52	ns
Self Control I (Pre-Operative)	2,60	0.37	ns
Partner's Involvement	2,60	5.7	.005
Self Control II (Post-Operative)	2,60	2.0	ns
Adjustment	2,60	16.2	.001

Table 6

Summary of Means and Standard Deviations of Multiple Analysis of Variance on Patient's Education, Age, Husband's/Partner's Education, Self Control I, Husband's Involvement, Self Control II, and Post-Operative Adjustment by Group

Variables	Control n=21		Information n=21		S-I n=21	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Education [a]	1.4	0.74	1.7	0.84	1.5	0.67
Age	39.9	5.15	39.9	6.45	41.8	5.46
Husband's Education [a]	1.5	.74	1.8	1.22	1.8	0.87
Self Control I (Pre-Operative) [b]	31.8	24.90	32.0	31.10	38.0	22.00
Husband's/Partner's Involvement [c]	24.9	4.20	29.1	4.74	28.6	4.18
Self Control II (Post-Operative) [b]	32.2	28.67	35.1	31.45	48.5	22.80
Post-Operative Adjustment [d]	90.4	14.20	99.0	12.50	110.6	6.42

a: 1=High School, 2=College, 3= University, 4= Post University
b: The higher the score the greater the perceived feelings of self control
c: The higher the score the greater the Partner's Involvement
d: The higher the score the more positive the adjustment
* Means underlined by the same line do not differ significantly from each other (Scheffe $p<.05$)

Inoculation group, and the Control group would not differ significantly from each other on husband's/partner's involvement. As can be seen by Table 5 the univariate analysis of variance indicates that the groups differed significantly at (p=.005) for husband's/partner's involvement. The results of the post hoc Scheffe test shows that both the Stress Inoculation and Information groups differed significantly from the Control group but not from each other.

Hypothesis IV postulated that perceived feelings of self control will not increase significantly in the Stress Inoculation group as compared to the Information group, and in the Information group as compared to the Control group. Inspection of the individual variables on Table 5 illustrates that the groups do not differ significantly from each other. To ascertain whether the groups differ in the gain score on perceived feelings of self control, a difference score was calculated by subtracting the pre-operative score from the post-operative score. As can be seen by Table 7 the results of the Anova on the difference score attained significance. The post hoc analysis shows that the Stress Inoculation was superior to the Control group in increased perceived feelings of self control but not from the Information group. No significant difference was found between the Information and Control groups (Table 8).

Discussion

Several post hoc analysis were carried out on the data. Tables 9 and 10 show an analysis of covariance that was conducted to adjust for the effects of husband's/partner's involvement on post-operative adjustment. The results of the Ancova demonstrates that after controlling for partners involvement that the groups still differ

Table 7

Summary of F Table of Anova on Pre and Post Operative Self Control Scores by Treatment Groups

Source	df	SS	MS	F	P
Between Groups	2	1164.41	582.20	3.7	.02
Within Groups	60	9355.23	155.92		

Table 8

Summary of Means and Standard Deviations for Pre and Post Operative Self Control Scores by Groups

	Control	Information	S-I
$\bar{X}$	0.42 [a]	3.0	10.5 [b]
SD	14.3	12.2	10.0

a: Scores underlined by the same lines do not differ significantly from other (Scheffe $p<.05$).
b: The higher the score the more the perceived feelings of self control.

Table 9

Summary of Analysis of Covariance of Post Operative Adjustment Scores by Treatment Group Adjusted for Husband's/Partner's Involvement

Source	SS	df	MS	F	P
Husband's/Partner's Involvement	4100.36	1	4100.36	42.3	.001
Group	2541.67	2	1270.83	13.1	.001
Explained	6642.04	3	2214.01	22.8	.001
Residual	5714.93	59	2214.01		

Table 10

Summary of Means and Adjusted Means of Ancova of Post-Operative Adjustment Scores by Treatment Group Adjusted for Husband's/Partner's Involvement

Groups	$\bar{X}$	Adjusted $\bar{X}$
Control	90.33	90.8
Information	99.05	99.42
S-I	110.62	109.85

significantly from each other on post-operative adjustment (p=.001).

To test whether the patients in the three different groups obtained significantly different scores on the various variables on the Adjustment Questionnaire (Appendix II) taken singly, an Anova was performed in respect of each measure followed by a Scheffe where appropriate. Means, Standard Deviations, and results of the analysis are given in Table 11. Significant differences were found on seventeen out of twenty-eight variables between the three groups.

The results reveal that the Stress Inoculation group as compared to the Control group reported an easier earlier resumption of normal activities, felt generally better and felt more informed and less anxious due to the information that they received (Questions 1, 2, 4, 5). In addition, the Stress Inoculation group felt more in control and sure of what was happening, reported a more stable post-operative family life, an earlier resumption of sexual relations and a more satisfying sexual relationship with more support from their partner as compared to the Control group (Questions 6, 7, 10, 11, 12, 18). The Stress Inoculation group further reported more comfort with their inability to menstruate and conceive and with their feelings of loss as compared to the Control group (Questions 20, 21, 19). In addition, the Control group had more headaches and reported an increase in troubling dreams as compared to the Stress Inoculation group (Questions 25, 28).

With respect to the Information group it was found that those patients reported more feelings of depression than the patients in the Stress Inoculation group (Question 26). In contrasting the Information and Control groups it was demonstrated that the Information group felt more in control and more sure with respect to what was happening to them

Table 11

Summary of One-Way Analysis of Variance for Each Variable on the Adjustment Questionnaire

# [b]	Theme	Groups: Control $\bar{X}$	Control SD	Information $\bar{X}$	Information SD	Stress Inoculation $\bar{X}$	Stress Inoculation SD	(df=2,60) F	P
1	Normal	3.33	1.20	3.67	1.11	4.19	.92	3.24	.046
2	Health	3.09	1.33	3.39	1.02	3.95	.80	3.44	.039
3	Satisfied I	3.71	.84	4.00	.84	4.23	.54	2.54	.088
4	Informed	3.23	1.17	3.77	1.17	4.23	.70	4.81	.011
5	Anxiety reducing	3.14	1.27	3.48	1.07	4.09	.54	4.80	.011
6	Control	2.66	1.27	3.61	1.11	4.00	.70	8.87	.004
7	Sure	2.66	1.35	3.80	.81	3.90	.94	8.83	.004
8	Discharged	3.42	1.32	3.19	1.20	3.47	1.36	.30	.748
9	Satisfied II	3.76	.94	3.76	1.04	3.47	1.28	.48	.626
10	Family	3.38	1.11	3.95	.58	4.33	.48	7.91	.009
11	Sexual I	3.33	1.27	3.61	1.02	4.28	.56	5.02	.009
12	Sexual II	3.00	1.14	3.52	.92	4.19	.51	9.25	.003
13	Sexual III	3.19	1.12	3.33	1.27	3.66	1.31	.81	.448
14	Sexual IV	3.66	.73	3.57	1.16	4.14	.84	2.25	.113
15	Interpretation	3.09	1.13	3.09	1.09	3.00	1.14	.05	.950
16	Negative work	3.42	1.02	3.61	1.02	4.19	.60	4.01	.025
17	Leisure	2.95	1.20	2.90	.88	3.28	1.18	.74	.479
18	Support	3.28	1.27	4.04	.97	4.28	.64	5.77	.005
19	Loss	3.38	1.39	3.85	.96	4.23	.88	3.16	.049
20	Menstruation	3.52	1.03	3.95	.86	4.33	.58	4.82	.011
21	Pregnant	2.80	1.43	3.42	1.20	4.09	.53	6.83	.002
22	Feminine	4.00	.89	4.00	.83	4.38	.80	1.41	.249
23	Weight	2.90	1.30	3.33	1.15	3.76	.83	3.11	.051
24	Pain	2.52	1.16	2.57	1.20	3.14	1.27	1.68	.194
25	Headache	3.04	1.39	3.57	1.12	4.00	1.00	3.40	.039
26	Depressed	3.38	1.11	3.23	1.13	4.09	.83	4.11	.021
27	Dream I	3.42	.92	3.38	1.07	3.76	.70	1.08	.343
28	Dream II	3.00	1.18	3.38	1.11	3.85	.85	3.44	.038

a: Scores underlined by the same lines do not differ significantly from each other (Scheffe $p<.05$)

b: The number of the question on the Adjustment Questionnaire

(Question 6, 7).

The Discriminant Function Analysis was utilized in the present study in order to establish the effectiveness of the various variables on the Adjustment Questionnaire in discriminating between the three groups of patients. The Stepwise procedure begins by choosing the single variable which has the highest value on the selection criteria. The process continues by locating the next variable that would yield the best discrimination given the variables that were already selected. To be more specific, the procedure chooses the following variable in combination with the previous variable or variables that leads to the next variable. Results of this analysis reveal that a combination of thirteen of the original twenty-eight variables were successful in distinguishing between the three groups (Table 12). The Discriminant Function Analysis addresses the question of the relative effectiveness of discrimination by individual measures within the test by assigning a weighting system to each separate measure. The role of the weighting system is such that, when they are applied to the scores obtained on their respective measures they provide maximum discrimination between the groups. It was demonstrated that Function I accounted for 78% ($p=.005$) of the explained variance between the groups and is the sole significant function. The group centroids reveal that Function I achieved maximum discrimination between the Stress Inoculation and Control groups. The results demonstrate that the following measures when grouped together contribute to discriminating between the two groups; (a) post-operative sexual adjustment; (b) comfort with the inability to conceive; (c) husband's/partner's support; (d) stability of post-operative family life; (e) feelings of control; (f) resumption of

Table 12

Summary Table of Stepwise Discriminant Analysis

Step	Variables In	Variables Out	Wilks Lambda	P	RAO'S V	P	Change in RAO'S	P
1) Sexual	1		.764	.003	18.50	.0001	18.50	.0001
2) Sure	2		.623	.0005	34.88	.0005	16.37	.0003
3) Pregnant	3		.560	.0005	44.86	.0005	9.98	.006
4) Depressed	4		.500	.005	52.45	.0005	7.59	.022
5) Family	5		.468	.005	59.51	.0005	7.05	.03
6) Satisfied II	6		.434	.005	67.62	.0005	8.11	.0173
7) Satisfied I	7		.402	.005	76.77	.0005	9.15	.010
8) Control	8		.381	.005	83.62	.0005	6.84	.032
9) Weight	9		.365	.005	89.25	.0005	5.62	.06
10) Family		8	.378	.005	84.54	.0005	-4.71	.09
11) Leisure	9		.363	.005	90.07	.0005	5.53	.06
12) Support	10		.346	.005	95.56	.0005	5.49	.06
13) Sexual I	11		.319	.005	102.25	.0005	6.68	.03
14) Family	12		.304	.005	108.79	.0005	6.54	.03
15) Feminine	13		.287	.005	115.15	.0005	6.35	.04
16) Leisure		12	.298	.005	109.36	.0005	-5.79	.05
17) Sexual IV	13		.286	.005	113.45	.0005	4.09	.12

sexual intercourse; (g) satisfaction with pre-operative sex life; (h) satisfaction with care while in hospital; and (i) feelings of femininity (Tables 13 and 14). Table 15 illustrates that a classification analysis was conducted in order to determine the success-failure rates of these variables on correctly classifying group members. Of the total sample 75% of the patients were correctly classified. None of the patients in the Information or Stress-Inoculation groups was misclassified as Control group members. It was demonstrated that 19% of the Stress Inoculation patients and 23% of the Control group patients was misclassified as Information group members. It was also found that 4.8% of Control group members and 28% of Information group members was misclassified as Stress Inoculation members. This analysis demonstrates that the combination of thirteen of the original twenty-eight variables contribute to successfully categorizing the patients according to their treatment group.

Pearson and Spearman correlations were carried out to examine the interrelationships amongst variables. As can be seen by Table 16 there were some significant correlations that proved to be interesting. Inspection of the significant associations shows positive correlations between the patients education and post-operative adjustment (r=.30), and partner's education (r=.55), partner's education and the patient's post-operative adjustment (r=.29), and partner's education and amount of involvement (r=.29). The patient's pre-operative perceived feelings of self control were highly positively correlated with post-operative feelings of self control and moderately positvely correlated with post-operative adjustment (r=.89 & r=.41). Post-operative feelings of self control positively correlated with post-operative adjustment

Table 13

Summary of Standardized Canonical Discriminant Function Coefficient

		FunctionI	Function II
		Control & SI	Information & SI
Variable 088	Satisfied	.51	.46
Variable 091	Control	-.42	-.01
Variable 092	Sure	-.31	.59
Variable 094	Satisfied 2	.42	.36
Variable 095	Family Life	-.33	.20
Variable 096	Sexual I	.32	-.77
Variable 097	Sexual II	-.77	-.04
Variable 099	Sexual III	.14	-.39
Variable 103	Support	-.44	.64
Variable 106	Pregnant	-.49	-.19
Variable 107	Feminine	.33	-.52
Variable 108	Weight	-.31	-.13
Variable 111	Depressed	-.14	-.72

Table 14

Summary of Canonical Discriminant Functions Evaluated at Group Centroids

Group	Function I	Function II
Control	1.57	-.312
Information	-0.278	.868
Stress Inoculation	-1.30	-.555

Table 15

Summary of Classification Results

Predicted Group Memberships

	Group	# of Cases	1	2	3
			Control	Information	S-I
Group Control	1	21	15 71.4%	5 23.8%	1 4.8
Group Information	2	21	0 0	15 71.4%	6 28.6%
Group S-I	3	21	0 0	4 19.0%	17 81.0%

Percent of grouped cases correctly classified = 75%

Table 16

Summary of Pearson Correlations

	Age	Husband's Ed.	Pre-OP S.C.I	Involve-ment	Post-Op S.C.II	Post-Op Adj.
Patient's Ed.	-.20 n=(63) p=ns	.55 n=(63) p=.005	.2432 n=(63) p=.027	.2013 n=(63) p=ns	.20 n=(63) p=ns	.30 n=(63) p=.008
Age		-.21 n=(63) p=ns	-.19 n=(63) p=ns	-.899 n=(63) p=ns	-.186 n=(63) p=ns	-.09 n=(63) p=ns
Husband's Ed.			.24 n=(63) p=.031	.29 n=(63) p=.01	.25 n=(63) p=.026	.29 n=(63) p=.011
Pre-Op S.C.I				.36 n=(63) p=.002	.89 n=(63) p=.005	.44 n=(63) p=.005
Hus/Part. Involve-ment					.34 n=(63) p=.003	.58 n=(63) p=.005
Post-Op S.C.II						.46 n=(63) p=.005

(r=.46).

Results of the Spearman analysis demonstrates a positive association with the patient's treatment group and the patient's post-operative adjustment (r=.61) (Table 17).

Being ill can involve threats not only to life and physical well being but also to one's self concept, social and occupational functioning values, and emotional equilibrium. Since efforts to cope may be diverted toward these threats as well as toward doing something about the physical illness itself, the ability to cope effectively will increase with a greater understanding and knowledge of these threats (Cohen & Lazarus, 1980). The Stress Inoculation treatment attempted to give the patients an understanding and knowledge of what was to be expected and most importantly to teach effective coping skills over a period of time. Research has indicated that it is effective to teach coping skills in "doses" rather than all at once allowing the individual to rehearse the new skills (Higbee, 1977). Within the course of conducting this investigation comments by staff and patients revealed that a practical clearly defined pre-operative preparatory program such as Stress Inoculation will be looked upon favourably (Appendix XI). In clinical research the assistance and cooperation of the nursing staff is essential. During the course of this study the experimenter met with no perceived resistance on the ward from the medical and nursing staff. Moreover, the mutual respect that developed helped lay the ground work for a more permanent pre and post-operative group based on the Stress Inoculation Model.

Two patients who initially responded positively about participating in this study changed their minds citing their inability to make the

Table 17

Summary of Spearman Table

	Lang.	SES	Marital Status	SESM	Type of Hyst.	Post-Op Adj.
Group	0 n=(63) p=ns	-.0922 n=(63) p=ns	-.1109 n=(63) p=ns	-.27 n=(63) p=.016	0 n=(63) p=ns	.61 n=(63) p=.001
Lang.		-.90 n=(63) p=ns	.87 n=(63) p=ns	.14 n=(63) p=ns	.02 n=(63) p=ns	.02 n=(63) p=ns
SES				.25 n=(63) p=.026	-.065 n=(63) p=ns	-.27 n=(63) p=.017
Marital Status				-.1726 n=(63) p=ns	.0086 n=(63) p=ns	-.02 n=(63) p=ns
SESM					.11 n=(63) p=ns	0.36 n=(63) p=.002
Type of Hyst.						-.22 n=(63) p=.038

time. There is no statistical data on these patients but one may speculate that their ambivalence with respect to participating may reflect their ambivalence about undergoing the surgery itself. Within the group discussions it became apparent that patients held a great deal of misinformation based on myths about what was to be expected both physically and emotionally after the hysterectomy. The feedback from the Stress Inoculation group members after the surgery was much more extensive than for the other groups, with 25% of the group spontaneously sending the experimenter letters about the benefits of the program when they returned their questionnaires three months following their surgery. A few of the letters were also sent to their gynecologists recommending that other patients should undergo such a preparation.

More than 20% of the patients wrote and reported that after the Stress Inoculation training they were able to overcome their negative thoughts thus becoming less apprehensive about the possible psychological effects of the surgery and can see the benefits of using this new skill when faced with further future stressful situations. Members of both the Information and Stress Inoculation groups stated that knowing other patients on the ward through their respective groups made the whole hospital experience less impersonal (Appendix XI).

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

It is the purpose of this concluding chapter to postulate implications and conclusions from this research and to propose areas of further research. A brief overview of the study will also be presented.

Research has demonstrated that a hysterectomy is the most commonly performed major operation with ten percent of North American women undergoing this surgical procedure (Roeske, 1979). While acknowledging that there are post-operative psychological symptoms research has focused on a remedial rather than a preventive approach. In general the stress associated with this form of surgery seems most likely to precipitate adverse psychological reactions in those patients who are less well prepared to deal with stress. The patient undergoing a hysterectomy is likely to experience some psychosocial stress. Thus, how this stress is dealt with and resolved will affect her psychological and physical adjustment.

The major purpose of this study was the comparison of Stress Inoculation and Preparatory Information to one another and to a control treatment with respect to their effectiveness as a pre-operative preparatory program in facilitating a positive post-hysterectomy adjustment as measured by an Adjustment Questionnaire 90 days following surgery.

Other objectives of this investigation were:

1. To investigate whether husband's/partner's involvement will be significantly greater for those patients participating in a preparatory program, as compared to a no treatment group of patients.

2. To examine whether perceived feelings of self control as measured by the Rosenbaum Scale will be significantly increased in the Stress Inoculation group as compared to the Information group than in the Control group.
3. To examine whether there were any relationships amongst the dependent variables.

Conclusions

The preliminary analysis demonstrated that the patients who prematurely discontinued the study after discharge as compared with those who completed the study differed with respect to the type of hysterectomy that they underwent. The analysis showed that slightly more patients who had a full hysterectomy which included the removal of their ovaries completed the study. One may speculate that one reason for this may be that these patients placed more importance on undergoing a hysterectomy than the other patients. For those who completed the study no positive significant relationship was found between type of hysterectomy and post-operative adjustment.

Considering the major objective of the study, the comparison of the effectiveness of the Stress Inoculation treatment and an Information treatment to one another and to a Control group it was clearly demonstrated that the Stress Inoculation group was superior to both the Control and Information groups but that the Information group did not differ significantly from the Control group. This finding may be due to the information that most patients routinely receive from their physicians. In examining these results it appears that Stress Inoculation helped the individual develop an instrumental response when faced with a stressful event rather than just making them aware of what

is to be expected as is with the distribution of information, confirming the findings of Langer, Janis, and Wolfer (1975). The effectiveness and the use of the Stress Inoculation model as a prophylactic tool was also confirmed by these findings (Meichenbaum, 1975). The results support Janis's (1975) work where he stated that the Stress Inoculation procedure can be expected to be effective for decisions or situations that entail undergoing painful treatments and deprivations before well being improves. Support was also given to the growing body of literature that suggests that self instructional training which was an important component of the Stress Inoculation treatment is a viable strategy for a wide range of problems. These findings also confirm the research of Hussian and Lawrence (1978) where it was suggested that it is not merely the identification of negative self statements that is important but that the treatment must replace the individual's negative self statements with positive self statements resulting in the modification of the individual's feelings of learned helplessness into feelings of learned resourcefulness.

With respect to a husband's/partner's involvement it was posited that it would be significantly greater for patients participating in a pre-operative preparatory program. The study demonstrated that the groups did differ significantly for partner's involvement with the Stress Inoculation and the Information groups differing significantly from the Control group but not from each other. Further, it was found that husband's/partner's involvement correlated significantly with the patient's post-operative adjustment. Perhaps, one reason why there was more partner's involvement for those women participating in a group is that the group sessions may have been responsible for the removal of the

many myths and misinformation about a hysterectomy leading to a more open discussion and sharing of accurate information between partners resulting in the partners feeling more informed, less anxious and less distressed about the surgery. Approximately 25% of the participants commented that their partners had expressed the desire to attend the group sessions together with their wives (Appendix XI). An interesting finding was the correlation between involvement and post-operative adjustment. Although the experimenter is aware that correlation does not mean causation the findings lend support to Young and Wise's (1976) assertion that the partner's involvement leading to acceptance and support are essential ingredients for a positive post-hysterectomy adjustment while lack of support or negative feelings will likely result in anxiety and distress.

A post-hoc analysis adjusting for the effects of husband's/partner's involvement on post-operative adjustment further demonstrated the efficacy of the Stress Inoculation treatment in facilitating a positive post-hysterectomy adjustment.

Another concern of the present research was whether perceived feelings of self control would increase significantly in the Stress Inoculation group as compared to the Information treatment, and in the Information group as compared to the Control group. It was demonstrated that the Stress Inoculation group was superior to the Control group, on this measure but not with respect to the Information group also no significant difference was found between the Information and Control groups. The results confirm research findings that suggested that an important aspect of the Stress Inoculation procedure is its ability to instill and develop perceived feelings of self control. A significant

positive relationship between pre-and post-operative self control scores and post-operative adjustment lends support to research that has postulated that feelings of self control are critical in the individual's successful mitigation of a stressful situation (Pranulis, Dabbs, & Johnson, 1975).

It was demonstrated that the groups differed significantly on seventeen of the twenty-eight variables on the Adjustment Questionnaire with the majority of the significant differences being found between the Stress Inoculation group and the Control group. On twenty-four of the twenty-eight items the Stress Inoculation group had higher means than the Information group but only significantly higher on one item. With respect to the total score on the Questionnaire the Stress Inoculation group differed significantly from both the Information and Control groups. Although the knowledge of which variables taken singly yield significant differences between the three groups of patients is interesting, the significant differences on the overall total is of more practical importance when evaluating a patient's adjustment.

Another post-hoc analysis illustrated that a factor composed of a combination of thirteen of the twenty-eight variables on the Adjustment Questionnaire successfully categorized the patients according to their treatment group and group membership was correctly predicted 75% of the time.

Relationships were found between a number of dependent variables employed in this study. An interesting finding worth noting was that no correlation was found between the patient's age and post-hysterectomy adjustment. Contradicting the findings by Newton and Baron (1976) where it was suggested that adjustment problems would decrease with increased

age. The measure used in the Newton et al study was depression where it is found that the rate of depression declined with increased age.

Implications of the Study

Based on the statistical data and on the participants feedback, this study has demonstrated that Stress-Inoculation is a viable and effective model for preparing women for a hysterectomy, facilitating a positive post-hysterectomy adjustment. This study has also shown that the distribution of information pre-operatively in a clear non technical manner is more effective than no treatment at all. These findings clearly confirmed Reading's (1979) review that suggested that patients would clearly benefit from a preparatory program that attempted to accomplish either directly or indirectly the following objectives: (a) the reduction of anxiety; (b) the removal of uncertainty; (c) an increase in feelings of self control; (d) the improvement of the patient's negative attitude toward the coming surgical procedure; and (e) the provision and teaching of coping strategies. In summary it is essential not only to teach and administer information about a coming stressful event but also how to utilize effectively this newly acquired information.

The findings suggesting that a husband's/partner's involvement resulting in support and acceptance can be increased by the woman's participation in a preparatory group indicates the possibility of it being beneficial to develop a joint husband and patient group.

With respect to future research implications this study has raised various possibilities. Firstly, the Hysterectomy Adjustment Questionnaire which was designed and developed by the experimenter and his research advisor can be further studied and refined in the quest for

construct validity by rating its compatability with other adjustment criteria such as the following; (a) doctors and nurses ratings; (b) length of stay in hospital; (c) family ratings; and (d) husband's/partner's ratings.

Future research on the Stress Inoculation program may assess whether patients are actually employing the treatment as presented. This study was an initial test of the program and it would be possible to modify such factors as; (a) assigning more homework; (b) increasing the size of the group; (c) adding relaxation excercises; (d) involving the husband/partner in the group; and (e) controlling for the influence of the referring doctors on the adjustment of the participating patients.

Another interesting area of research, where little is known, is with respect to examining the patterns of coping most individuals employ when faced with a stressful situation, which patterns work for certain types of people, how they work, and the specific set of circumstances under which they are effective.

The identification of high risk patients through a pre-operative screening procedure, followed by an assessment of their post-hysterectomy adjustment, is an area of research that needs to be recognized and carried out. Such a study may lead to the development of preparatory programs to meet the needs of this population.

Future research may want to compare with respect to adjustment those patients who are undergoing hormone replacement therapy with those who are not. This area of research is largely in the field of Physiological Psychology as one must take into account the type and amount of hormone that is administered to the patients as well as the

type of pre-operative preparation they received.

In conclusion, the results of this study clearly demonstrate that the Stress Inoculation Model within the Cognitive Behavior Modification field is more efficacious in facilitating a positive post-hysterectomy adjustment as compared to a Control group and an Information group. Clearly, preparatory information in itself is not sufficient.

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Appendix I

Rosenbaum Scale

Patient # _____

Directions: Indicate how characteristic or descriptive each of the following statements is of you by using the code given below.

+3 very characteristic of me, extremely descriptive
+2 rather characteristic of me, quite descriptive
+1 somewhat characteristic of me, slightly descriptive
-1 somewhat uncharacteristic of me, slightly undescriptive
-2 rather uncharacteristic of me, quite undescriptive
-3 very uncharacteristic of me, extremely undescriptive

_____ 1. When I do a boring job, I think about the less boring parts of the job and the reward that I will receive once I am finished.

_____ 2. When I have to do something that is anxiety arousing for me, I try to visualize how I will overcome my anxieties while doing it.

_____ 3. Often by changing my way of thinking I am able to change my feelings about almost everything.

_____ 4. I often find it difficult to overcome my feelings of nervousness and tension without any outside help.

_____ 5. When I am feeling depressed I try to think about pleasant events.

_____ 6. I cannot avoid thinking about mistakes I have made in the past.

_____ 7. When I am faced with a difficult problem, I try to approach its solution in a systematic way.

_____ 8. I usually do my duties quicker when somebody is pressuring me.

_____ 9. When I am faced with a difficult dJcision, I prefer to postpone making a decision even if all the facts are at my disposal.

_____ 10. When I find that I have difficulties in concentrating on my reading, I look for ways to increase my concentration.

_____ 11. When I plan to work, I remove all the things that are not relevant to my work.

_____ 12. When I try to get rid of a bad habit, I first try to find out all the factors that maintain this habit.

_____ 13. When an unpleasant thought is bothering me, I try to think about something else.

_____ 14. If I would smoke two packages of cigarettes a day, I probably would need outside help to stop smoking.

_____ 15. When I am in a low mood, I try to act cheerful so my mood will change.

_____ 16. If I had the pills with me, I would take a tranquilizer whenever I felt tense and nervous.

_____ 17. When I am depressed, I try to keep myself busy with things that I like.

_____ 18. I tend to postpone unpleasant duties even if I could perform them immediately.

_____ 19. I need outside help to get rid of some of my bad habits.

_____ 20. When I find it difficult to settle down and do a certain job, I look for ways to help me settle down.

_____ 21. Although it makes me feel bad, I cannot avoid thinking about all kinds of possible catastrophies in the future.

_____ 22. First of all I prefer to finish a job that I have to do and then start doing the things I really like.

_____ 23. When I feel pain in a certain part of my body, I try not to think about it.

_____ 24. My self-esteem increases once I am able to overcome a bad habit.

_____ 25. In order to overcome bad feelings that accompany failure, I often tell myself that it is not so catastrophic and that I can do something about it.

_____ 26. When I feel that I am too impulsive, I tell myself "stop and think before you do anything".

_____ 27. Even when I am terribly angry at somebody, I consider my actions very carefully.

_____ 28. Facing the need to make a decision, I usually find out all the possible alternatives instead of deciding quickly and spontaneously.

_____ 29. Usually I do first the things I really like to do even if there are more urgent things to do.

_____ 30. When I realize that I cannot help but be late for an important meeting, I tell myself to keep calm.

_____ 31. When I feel pain in my body, I try to divert my thoughts from it.

_____ 32. I usually plan my work when faced with a number of things to do.

_____ 33. When I am short of money, I decide to record all my expenses in order to plan more carefully for the future.

_____ 34. If I find it difficult to concentrate on a certain job I divide the job into smaller segments.

_____ 35. Quite often I cannot overcome unpleasant thoughts that bother me.

_____ 36. Once I am hungry and unable to eat, I try to divert my thoughts away from my stomach or try to imagine that I am satisfied.

Appendix II

Hysterectomy Questionnaire

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	2	3	4	5

Directions: Indicate the degree of agreement or disagreement with the following statements as they relate to you by circling the appropriate number.

1. You were able to resume your normal activities without much difficulty within three months following surgery.....1 2 3 4 5

2. Your general health is better than before.....1 2 3 4 5

3. You are satisfied with the results of your surgery.....1 2 3 4 5

4. You felt well informed about the surgery and its possible effects.....1 2 3 4 5

5. Your anxiety was reduced by the information you received.1 2 3 4 5

6. You felt you were in control of what was happening to you during your stay in the hospital.....1 2 3 4 5

7. You felt sure of what was going to happen to you.....1 2 3 4 5

8. You felt that you were discharged from the hospital earlier than expected.....1 2 3 4 5

9. You were satisfied with your care while in hospital.....1 2 3 4 5

10. Your family life has remained the same as before the surgery.....1 2 3 4 5

11. You resumed sexual relations within 3 months following surgery.....1 2 3 4 5

12. Sexual relations have gotten worse since the surgery.....1 2 3 4 5

13. You are experiencing increased pain with intercourse since the surgery.....1 2 3 4 5

14. Sexual relations were satisfactory before the operation..1 2 3 4 5

15. There have been positive changes in your interpersonal relationships with significant people in your life.....1 2 3 4 5

16. There has been a negative change in your ability to work productively.....1 2 3 4 5

17. There has been an increase in the amount and quality of your leisure time 1 2 3 4 5

18. Your husband or sexual partner was supportive of your undergoing the surgery 1 2 3 4 5

19. The surgery has left you with a feeling of loss 1 2 3 4 5

20. You are pleased with not being able to menstruate anymore 1 2 3 4 5

21. You are pleased with not being able to become pregnant anymore.....1 2 3 4 5

22. You feel less feminine and attractive than before the surgery.....1 2 3 4 5

23. You are not bothered by weight gain following surgery ...1 2 3 4 5

24. You did experience a great deal of pain post-operatively.1 2 3 4 5

25. You have more headaches now than before the surgery.....1 2 3 4 5

26. You feel more depressed following the surgery than you did before the surgery 1 2 3 4 5

27. You dream less following the surgery than before surgery.1 2 3 4 5

28. Your dreams are more troubling following the surgery than they were before the surgery 1 2 3 4 5

Appendix III

Husband's/Partner's Questionnaire

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	2	3	4	5

Directions: Indicate the degree of agreement or disagreement with the following statements as they relate to you by circling the appropriate number.

1. You felt well informed about your wife's surgery and its possible effects 1 2 3 4 5
2. You felt informed of what was going to happen to your wife1 2 3 4 5
3. The information that you received reduced your anxiety...1 2 3 4 5
4. You were satisfied with your wife's care pre and post operatively.....1 2 3 4 5
5. It seems to you that your wife is less feminine and attractive following the surgery.....1 2 3 4 5
6. Your family life has remained the same as before the surgery.....1 2 3 4 5
7. Sexual relations have not worsened following surgery 1 2 3 4 5
8. You are pleased with your wife's inability to become pregnant.....1 2 3 4 5

Additional Comments

Appendix IV

Rationale For The Study That Was Given To The Stress Inoculation Group.

This study involves the preparation of patients undergoing a hysterectomy and looking at their post operative adjustment. I am carrying out this work in conjunction with the Gynecology Department. Participation in this group is strictly voluntary and all information obtained is strictly confidential. Your participation will entail meeting twice in a group of four or five women before the surgery for a total of approximately two and one half hours and once after your operation for approximately one hour. I will ask you to complete four questionnaires at different periods of time and one by your husband/partner if you have one. You will be given two questionnaires before the group begins, one six or seven days after the surgery, and one to be completed twelve weeks following your surgery at which time your husband/partner will complete his questionnaire. These two questionnaires will be mailed back to me in the pre-addressed envelope that I will be giving you. Do you have any questions or comments on what I have just said? If you decide to participate in this group you have the right to withdraw any time you wish.

Appendix V

Rationale For The Study That Was Given To The Information Group

This study involves the preparation of patients undergoing a hysterectomy and looking at their post operative adjustment. I am carrying out this work in conjunction with the Gynecology Department. Participation in this group is strictly voluntary and all information obtained is strictly confidential. Your participation will entail meeting once for one hour prior to your surgery in a group of four or five women. I will ask you to complete four questionnaires at different periods of time and one by your husband/partner if you have one. You will be given two questionnaires before the group begins: one, six days after the surgery; and one to be completed twelve weeks following your surgery at which time your husband/partner will complete his questionnaires. These two questionnaires will be mailed back to me in the pre-addressed envelope that I will be giving you. Do you have any questions or comments on what I have just said? If you decide to participate in this group you have the right to withdraw any time you wish.

Appendix VI

Consent Form

I, ... freely and voluntarily and without undue inducement or any element of coercion consent to be a participant in this research project. The procedures to be followed, and their purposes, have been explained to me. As I understand it, the study is concerned with psychological adjustments to hysterectomy. In order to assist in obtaining this information I will be requested to complete several questionnaires.

I understand that this consent and data collected on me may be withdrawn at any time without prejudice. I also realize that all information obtained is strictly confidential. While findings may be published in scientific journals, there will be no identification of me personally in these papers. All information will be reported in group form and will remain strictly anonymous.

I have been given the right to ask and have received answers on any inquiry concerning the research. Questions, if any, have been answered to my satisfaction. I have read and understood the foregoing.

....

Witness Research Participant

I, Michael Handman, certify that I have explained to the above mentioned patient the nature of the research study, and that the patient has the option of withdrawing from the study at any time.

(signed).....

Appendix VII

Patient's Demographic Data Sheet

Date:

NAME:_____ _____

(given) (family)

NATIONALITY:_____

STATUS S M W D O:_____

DATE OF BIRTH_____ AGE:_____

TELEPHONE:_____

PRESENT ADDRESS:_____

(street & number) (city) (postal code)

EDUCATION:_____

OCCUPATION:_____

HUSBAND'S EDUCATION:_____

HUSBAND'S OCCUPATION:_____

Appendix VIII

Information Treatment

Thank-you for participating in this group.

It has been shown that most individuals are somewhat anxious before an operation which often is due to lack of accurate information and knowledge about what is to be expected during their stay in hospital and in the nature of their surgical experience. This one hour session will focus on the distribution of information through a videotape that will show the experimenter interviewing a female gynecologist. The length of the tape is approximately twenty-five minutes. Feel free to ask questions relating to the video that are non medical in nature since your medical questions are to be directed toward your own highly competent gynecologists.

Transcript of Tape

The uterus, or the womb is where a baby can grow and where the menstrual flow comes from. The vagina is where the menstrual flow comes out from. The cervix is the portion of the uterus which extends into the vagina. The ovaries produce hormones which go into the blood stream, and they produce an egg more or less monthly (ovulation) between puberty and menopause except when a woman is pregnant or taking birth control pills. The fallopian tubes carry the egg to the uterus. Menstruation follows unless a sperm fertilizes the egg.

Hysterectomy is an operation to remove the uterus. Usually the cervix is also removed. After the hysterectomy you will no longer have menstrual periods nor will you be able to become pregnant again. You will however still have your monthly hormonal cycles unless your ovaries will also be removed.

If your ovaries are to be removed, the reasons should be discussed with your own gynecologist. Removing the ovaries is called an ovarectomy or oopherectomy. This procedure is often referred to as a "total hysterectomy". Thus as you can see, hysterectomy involves removing the uterus and usually the cervis. The vagina is not removed except in special circumstances which should be discussed with one's physician. The operation can be done abdominally, through an incision either between the navel and the pubic region, or across the top of the pubic hair. It can also be done vaginally. The type of procedure that is to be carried out should be discussed with your surgeon.

STOP-Are there any questions about what was presented so far?

A typical hospitalization for hysterectomy is usually something like this. You will be admitted the day before, and a history is taken along with a general physical. Sometimes x-rays or blood tests are carried out, usually most of this work is done prior to hospitalization.

During the first evening, the nurse will record your vital signs (temperature, blood pressure, & pulse) and will carry out the doctor's orders which may include the monitoring of vital signs, any special diet or medication, and physical preparation for the surgery. Being "prepped" includes a very thorough shave of all the area to be exposed during the surgery followed by a shower. This is carried out to keep the area sterile. An enema is generally prescribed at this time. During the evening you will be asked to sign a consent form for both the surgery and the anesthesia.

In the morning you will not be given breakfast and you will be given a pre-operative medication which will probably make you drowsy and somewhat dry. A little after the injection you will be transferred to

the operating room area. In the operating room an intravenous medication will be started and you will be put to sleep. You will be attached to monitors so that all your vital signs can be monitored by the anesthesiologist.

After the surgery you will be wheeled to the recovery room where a highly specialized nursing team will care for you, taking your vital signs as often as they feel it is appropriate. When your condition is considered stable you will be transferred back up to your room. Generally you will have medication for pain and nausea which will be given every few hours upon request.

STOP-Are there any questions?

After the surgery a number of steps are usually taken to prevent complications. Walking is stressed very early on so to stimulate your breathing and circulation. You will also be given breathing exercises so as to prevent pneumonia. Physicians will listen to your abdomen for bowel sounds which will guide them in allowing you to have fluids and solid foods progressively.

Generally on the second post-operative day you will be allowed to have fluids and on the third or fourth day solid foods. Discharge from the hospital will be decided upon by your physician and at that time he or she will probably give you further instructions to help you in your recuperation.

One must bare in mind after this discussion on hospital procedures that woman's experiences are unique, and that hospital procedures, and doctors vary, resulting in people having different experiences at times. The staff in this hospital are well trained and are here to meet the patient's needs.

STOP-Are there any questions on what was presented thus far?

Weepiness and sadness after hysterectomy are quite common, but usually these feelings don't last very long. These feelings should be expressed and you should not feel that these feelings are a sign of weakness. You will probably be told by your gynecologist to avoid "sex" for approximately six weeks, make sure to ask about this. With respect to sexuality there are benefits from the surgery. If contraception was a problem, you will be free to be sexually active without this worry, and also worry about your health undoubtedly affects your sex life and hopefully this worry will be relieved by the hysterectomy.

Recovery times vary greatly and one woman's experience may be quite different from another's. Studies have shown that the average return to regular activities was between 4 x 6 weeks. It is common at this time to be bothered by fatigue.

End of tape.

Hopefully this information tape has answered some of your questions and has allayed some of your fears. Feel free now to ask questions relating to the issues that this presentation has raised, keeping in mind that technical medical questions should be asked of your doctor.

Thank-you very much for participating in this group and I will see you on the sixth or seventh day following your surgery to give you the rest of the questionnaires.

Appendix IX

Stress Inoculation Treatment

1st Session. Thank-you for participating in this group.

Most people are somewhat anxious before a stressful event such as a hysterectomy but that people can often control their emotions if they know how to. We will begin by exploring your knowledge, fears, feelings, thoughts, attitudes, expectations, and beliefs with respect to your upcoming surgery.

A stress reaction involves two major elements: (a) your heightened arousal (e.g., body tension, sweaty palms, or any symptom that you feel; and (b) a set of anxiety engendering avoidant thoughts that you have conveyed about the upcoming surgery. What we tell ourselves about events can influence how we feel about them. What we will be doing will be focusing upon showing you how to recognize your negative thoughts about this upcoming surgery and to replace these with more positive or realistic thoughts.

This approach is called self instructional training. This training involves breaking down a stressful situation into four phases while making appropriate self statements throughout each phase. Breaking down the stressful situation into phases will allow you to see the event as something that is not overwhelming and that can be coped with.

The first phase is the preparation for the intense stimulation before it becomes too strong. Examples of self instructions that can be made at this phase may include:

(a) What is it I have to do?

(b) No negative self statements, just think rationally.

(c) Don't worry-worrying won't help anything.

(d) Maybe what I think is anxiety is eagerness to confront the surgery.

For example many patients when faced with the prospect of having surgery tend to catastrophize the events and say such statements as "I am too afraid to go through with it" rather than taking it one step at a time.

The second phase is confronting and handling the intense stimulation. In this phase you actually find yourself in the situation where you once again let your negative thoughts interfere with your coping ability. Examples of some self statements that can be made at this point may include:

(a) One step at a time I can handle the situation.

(b) Just "psych" myself up. I can meet this challenge (view the hysterectomy as a challenge that you can deal with).

(c) Don't think about my fear about the hysterectomy, just think about what I have to do.

(d) The tenseness and anxiety that I feel may be an ally; a cue to cope.

The third phase is coping with thoughts and feelings that arise at critical moments when you notice the intensity of the sensations seem to be increasing or you think that you are being overwhelmed by them. While going through this phase you should be aware that what we say to ourselves can influence how we feel. Examples of some of the self instructions or statements that can be made at this phase include:

(a) I know I will be scared but I will be able to manage this fear.

(b) I will label my fears about the hysterectomy that are making me anxious from 0-10 and watch them change.

(c) Things are going pretty well. It must be because of this surgery. I am depressed-hold it don't make things worse, stop exaggerating the effects of the surgery.

So if you feel you can't cope with having a hysterectomy, listen to your negative self talk and replace it with more realistic verbalizations.

The last phase is called positive reflective statements. Throughout the three phases described earlier you might evaluate your performance. As we all know people usually criticize their behavior but rarely praise themselves. You should pay attention to the positive aspects of your coping performance and congratulate yourself for doing well. Examples of some self reflective statements can be:

(a) I went through with it.

(b) I made more of this surgery than it really was.

(c) I am not letting the negative thoughts interfere with how I am feeling.

What should be clear is that the examples given throughout all of the phases are merely illustrative of some of the coping statements that you can use. What we would like you to do now is to try and think up some positive self statements that you might say to yourself during each stage of this stressful event. We'll name the phases and you generate the coping statements.

In ending this session we would like to give you a homework assignment which will entail listening to your negative self statements and to generate your own coping self statements to be employed at the various phases.

2nd Session. Welcome back. We trust the homework assignment has

made you more aware of your negative self statements and of your ability to generate new coping positive self statements. As we can see there are many similarities in positive self statements that people have generated. We can further note that our maladaptive and adaptive responses that are mediated by the statements that we say to ourselves. The awareness of the occurrence of these self defeating statements is occassion for producing your incompatible coping self statements. Your maladaptive thoughts, beliefs, and feelings about the hysterectomy become the cues for you to employ this coping technique that you have learned. Are there any questions?

Presently it would be appropriate to test out and practice the new cognitive coping skills that you have developed. Imagine yourself failing to cope with your negative self statements about the hysterectomy and then able to regain composure by replacing these negative self statements with positive self statements. First do it outloud and then covertly. The loss of composure should be used as a cue for using the coping procedure. If there are any questions feel free to ask them. We would encourage you to employ these coping techniques that we have discussed.

3rd Session. As a group let us review your hospital experience. Express your thoughts, feelings, and beliefs that you had just prior to and after your surgery. Look at your thinking pattern and see if you are employing the appropriate coping processes. Implement this new way of dealing with stress when faced with stressful aspects of your recovery both now and in the future.

What we would like to conclude with is a discussion focusing on what you people felt were the positive and negative aspects of this

program and if it was found to be helpful. It is important to note that it would be advantageous for you to apply your new coping skills in other stressful situations that may come up in your everyday lives. If there are any questions feel free to ask them.

Appendix X

Control Treatment

I am carrying out a research project with the Gynecology Department focusing on a patient's adjustment to hysterectomy. Participation in this study is strictly voluntary and your answers to the questionnaires that you will be given will be kept confidential. I will ask you to complete four questionnaires at different periods of time and one by your husband/partner if you have one. You will be given two questionnaires today, one in six days, and one to be completed in twelve weeks by yourself and one to be completed at the same time by your partner and mailed back to me in a pre-addressed envelope. Do you have any questions on what I have just discussed with you? Thanks a lot for participating in this study and I will be back to see you in six days.

Appendix XI

Random Comments by Patients

Patient 210: I believe that a group with husbands would be beneficial. The significance of the surgery is not fully understood by husbands. (Information Group)

Patient 102: A man who is not mature will not be able to give support to his partner but will himself need support to deal with the surgery. (Control Group)

Patient 213: One is "lucky" if your husband is supportive of you - it should not be taken for granted. (Information Group)

Patient 301: You feel that irreplacable parts are to be removed and that you are no longer as feminine as previously. (Stress Inoculation)

Patient 220: In a logical rational manner I know that I don't lose my femininity but on an emotional level it is hard to accept it. (Information Group)

Patient 309: One learns to cope but not to accept being sterile and not even being able to become pregnant again. (Stress Inoculation)

Patient 213: I know that I will become depressed after the hysterectomy and there is nothing one can really do about it. (Information Group)

Patient 320: This group has helped me to overcome other difficulties. I have a difficult life and these skills can help me in dealing with my other difficulties. (Stress Inoculation)

Patient 316: I went home after the second session and I was ready to pack to come into the hospital. Before this group I was really scared of hospitals. (Stress Inoculation)

Patient 318: The group has given me a sense of security that I can deal with my fears instead of them overwhelming me. This in turn gave my

family confidence and they were less anxious. I can see using this Stress Inoculation in other areas of my life. (Stress Inoculation)

Patient 308: This training group has also helped me to deal with my slipped disc and the limitations that it imposes. (Stress Inoculation)

Patient 213: I found it very helpful that when I came into the hospital I knew other patients - sort of like friends. (Information Group)

Patient 204: Knowing other patients on the ward was great since if one of us felt scared or down the other one would try and pick them up and make them feel better. It made it less impersonal. (Information Group)

Patient 317: It is amazing how the fears that one builds up in one's head is so much greater than the reality. The program has helped me bring my fear down to a realistic level. This group has made me feel like a real person rather than a number as one usually feels in a hospital. (Stress Inoculation)

Patient 321: I feel more calm and happy since my surgery since I don't have to worry about this area of my health anymore. I feel as attractive and sexually appealing as before. (Stress Inoculation)

Patient 112: It takes longer to feel good again than one really imagines. (Control Group)

Patient 318: Coming to the group has helped "psyche" me up to come in for the surgery since last year I cancelled the day I was supposed to come in. (Stress Inoculation)

Patient 304: I must admit that it is not easy when we return home and realize that we can't do our work as usual. But I've tried to be positive and I think that the group before and after the surgery has had successful results. I think that every woman who needs a hysterectomy should go through such a group. (Stress Inoculation)